MARKETING MIX DETERMINATION FOR THE PROMOTION OF HERBAL MEDICINES IN INDIA

ABSTRACT

THESIS

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BY

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UNDER THE SUPERVISION OF

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ABSTRACT

India has got a wealth of medicinal plants that lie underutilized altogether. The present research aims at identifying the reasons for this low focus on exploiting the demand potential and meeting the needs of the market by proper presentation and value-added Marketing approach. Allopathic medicines are gradually getting more expensive resulting in a huge demand for traditional systems of medicines. The demand for these medicines has tremendously increased in the last few years. The expectations of the consumers in respect with product form, size, packaging, price, delivery etc. need to be studied and utilised. There is enormous scope of value addition in such products. Due regard to the consumer needs will result in the increased demand. This will help them switch over to herbal alternatives. The herbal medicines in the past had a faceless presentation and were sold on the strength of reputed and trusted *Vaids* and *Hakeems*. They are rarely visible now. The only option today is to give them *presentability* by way of proper branding, packaging and adding value for money. The producers, processors and the marketers should focus on the type, size and quality of their packaging. This is getting inevitable for the herbal medicine companies for their future survival.

The market is witnessing a plethora of new herbal brands in every category being launched on daily basis. The shelf space is increasingly being occupied by these products. What is interesting is that not only the *desi* players, but even the MNCs (Multinational Corporations) are playing along with the herbal and natural tune. Anything from toothpaste to lipstick is available in its natural, herbal variant. Toilet soap is one such category. The herbal is in fact doing wonders in the FMCG (fast moving consumer goods) category. Drawing from the example of FMCG category the herbal medicine industry in India should take the initiatives to tap the high potential in the market. The producers, processors and the marketers should consider the consumer as the key to success for their business. Ignoring the tastes and preferences of customers is suicidal in business __ be it an item of food or cosmetics or even the medicines. This aspect was by and large ignored in the health sector but the new era of competition has made the players in the field of herbal medicine more conscious of consumer *likes and dislikes*. More will the methods be adopted to woo the consumers, better will be the prospects of this industry to prosper.

The growth rates on the export front show a very encouraging picture. The growth in the total exports of all the categories of herbal medicines has been spectacular and offers great opportunity to our export promotion drive. Import has also picked up recently but the growth rates show a decreasing trend with the exception of branded herbal medicines. This clearly shows that the future is for the branded products. If the branded products gradually replace the present herbs' exports, it will even be better in order to achieve the better value for the exports.

The study aims at exploring the potentials and finding the means and ways of promoting the herbal health care products by developing effective marketing mix for

the achievement of total health of the people of India in particular and the world population in general. The nature of this study is characterized by the following features-

1. It is a Social Research.
2. It is Exploratory.
3. It has an Applied Bias.
4. It relies on Empirical Evidence.

Other than the secondary sources available [redacted]ide the relevant *information from different companies, government agenc[redacted]the libraries the* focus in this research is on the primary sources of informatio[redacted]jor part of data is collected through survey of the following groups of responde[redacted].

1. Consumers i.e. the potential users of herbal remedies
2. Doctors i.e. the potential advisors / consultants of the herbal [redacted]edicines
3. Dealers / retailers i.e. the suppliers who stock and offer the herbal medicines to the end users

An effort has been made to cover the cross-sections of the above groups. Separate questionnaires have been designed for separate groups of respondents. A stratified two stage sampling design has been used. Stratification has been done on the basis of the type of city. In the first stage two cities were selected from each zone i.e. Eastern Zone and Northern Zone. In the second stage respondents have been taken in equal number from each of the cities to ensure sufficient representation of each zone and the selected cities. The whole population (Eastern and Northern India) has been divided into two strata (Divisions) of East and North zone. Out of these zones four cities were chosen on convenience basis. Consequently the following selections were made. (The figures show the sample sizes)

Districts/ Cities	Consumers	Doctors	Dealers/ Retailers	Total
Patna	50	25	25	**100**
Sitamarhi	50	25	25	**100**
Delhi	50	25	25	**100**
Aligarh	50	25	25	**100**
Total	**200**	**100**	**100**	**400**

This type of stratified sampling is on the one hand, expected to allow representation of all segments of the population in sufficient number and on the other hand facilitate using statistical tests to study the behavioral patterns of the different strata individually.

For the purpose of drawing conclusions and testing of hypothesis, the following methods were used in the process of data analysis:

1. Frequency and percentage calculation for different parameters
2. Rank coefficient using the ranks and multiplying them with the appropriate weightage-coefficients rank wise
3. Correlation coefficient for comparing the two sets of similar data obtained from different groups of respondents
4. Rating scores for Likert scale analysis by multiplying the frequencies with the appropriate weightage-coefficients
5. Chi square test for independence / significance test

In the above analyses SPSS package was used for calculatir,o provlues.

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The market survey shows that allopathic treatment has ' and m. effectiveness level i.e. 4.5 on 1–5 scale. Ayurvedic, Unani and Homeopati nts. ments have effectiveness level of 3.45, 3.35 and 3.18 respectively. The effe ss level of herbal treatment (including Ayurvedic, Unani and Homeopathy t ents) in the cities of Patna, Sitamarhi, Delhi and Aligarh are 3.37, 3.32 and 3.. espectively. This shows more or less similar level of effectiveness in all of the above ties. These figures show an edge of Allopathy over all others, but the other treatments have a strong presence in the minds of people. Indian system of medicine has an excellent record for curing the chronic health problems that do not respond well to modern medicine. Herbal drugs are easily accepted by the people because of the reasons like superior quality of protoplasm, easy to adopt, free from all side effects known to be caused by synthetic drugs.

The survey reveals that herbal medicines are especially effective in 'liver and digestive disorder' followed by 'men and women sexual problems', 'vigour and vitality', 'blood & skin care', 'personal care', 'cold & cough', 'joint & bones problems' and 'children care'. In above diseases herbal medicines are considered to be more effective than the others. This implies that the companies should focus on the medicines for the ailments in which consumers and doctors have more faith on herbal medicines. The companies should also induce the consultants to prescribe herbal medicines for these ailments. And the companies should adopt best R&D activities in those disease areas where herbal medicines have more effectiveness. Advertising and sales promotion should also sufficiently support such herbal medicines.

On the whole consumer believes that five most important reasons for popularity of herbal medicines are: 'less side effect', 'natural ingredients instead of synthetic ones', 'total eradication of disease', 'no expiry of medicine', 'affordable price' and 'rising trends for the traditional medicines', while doctors reported that five important reasons for it are in this order: 'natural ingredients instead of synthetic ones', 'less side effect', 'total eradication of disease', 'rising trends for the traditional medicines' and 'affordable price'. The people are becoming increasingly dissatisfied due to the detrimental effects of modern drug therapy.

The trial of herbal treatment by the herbal practitioners & practitioners practicing both is the frequent choice in prolonged illness and in initial stage of disease, while trial as a supplement in prolonged illness is found more frequent by the modern practitioners. All categories of doctors who prescribe alternative medicines also believe that herbal treatment doesn't respond well in the stage of acuteness. The companies should therefore develop the products for chronic diseases and for initial stage of treatment and should adopt good manufacturing practices for capturing this potential market.

The willingness for stocking of herbal medicines by retailers is high in almost all the cities. North zone shows higher willingness than the east zone i.e. 80% and 75.51% respectively (which includes 'more' & 'much more' choices in the questionnaire). Dealer wise willingness shows that all types of dealers have the willingness for stocking of herbal medicines more. Among the herbal medicines dealers and both types of medicines' dealers it is 80% and 65% respectively while dealers of modern medicine indicate their willingness only at 41% for 'more' and 25.54% for 'much more' stocking of herbal medicines. The result confirms the faith in the herbal trend gaining pace in all cities under study. The manufacturers need to take note of the situation and rollout the products with greater emphasis on the herbal remedies. There is a fast changing perception particularly among the people of eastern and northern India (where the survey is conducted) and throughout India in general. The herbal market calls for greater research in the herbal formulations and producing quality products to compete with the foreign products.

Majority of doctors are in favour of producing herbal drugs in all forms and sizes; only 4% doctors reported that producing in all forms and sizes is not 'desired'. From the above analysis it is observed that manufacturers of herbal drugs should make it possible to offer their products in all forms and sizes because the majority of Indian people belong to lower income groups who look for the forms and sizes of herbal medicine which suit their budget.

'Tablets and capsules' are most preferable forms in all the cities / zones. 'Syrup and sherbet' is the second preferable form of herbal drugs in the small cities (Aligarh and Sitamarhi), while 'paste' form is the second choice of consumers in Delhi. The sellers/ processors should try to present their products in all the preferred forms especially in 'tablets/ capsules' and 'syrup/ sherbet' forms, which are popular choice of consumers. They should also try to present their products in alternative packages to satisfy the individual needs of different segments of users. For the busy and mobile people the pouches should be offered for providing convenience. Unbranded loose supply should be avoided, as it is less acceptable by the people. The products should be packed in all common sizes to satisfy different income groups among the users. For the economically poor people single dose pouches should also be offered for the reason of affordability.

It implies that herbal manufacturers should give more attention to the product attributes which are more desired by the consumers and doctors especially the

ingredients should be standard ones and the formula should be effective for the ailments. Proper prescription is also an important characteristic of herbal treatment. Suitable prescription will be instrumental for curing the ailments within the limited time.

The consumers and doctors feel difficulty in using the herbal medicines due to the conventional forms & old methods of preparation. So the processors should try to produce their products by latest technology and for the busy and mobile kinds of consumers it should be acceptable and convenient to use.

In this age of media various advertising and publicity tools like television, print media etc. are dominant in the markets. These media have penetrated to lowest level of population and have a wide reach among people of all classes. Thus the marketers should utilize these fully to turn consumers' perception in their favour. The decision on advertising media mix should therefore be on the basis of the prevalence of various media and according to its effectiveness region-wise.

Promotional tools like price discount, free gift and extra with product are expected to normally get a favourable response of all the segments, income and the age groups of consumers in spite of the differences in the proportions favoring them. The study shows clearly the overall favorable attitude for new herbal products. It indicates a favourable market with a patronage of all kinds of doctors. Companies should manufacture the quality products and try to maintain a rapport with the doctors of all kinds. The herbal formulations should have laboratory research, animal screening and controlled clinical trials and companies should be conscious about their safety before marketing them. The pharmacopeia of Indian traditional medicine needs updating from time to time and development of new methods for maintaining quality control for plant-based drugs. Therefore constant R & D inputs are required for developing newer methods of standardization and quality control. Samples of drugs must be distributed among the doctors, so that they could test them on their patients. The advertisements of products containing its composition, indications, adverse effects, contra indications, doses and prices should be published in different professional journals, which are published by different medical associations and commercial advertisements should be released through international advertising agencies.

The consumers feel that average prices of herbal medicines are higher than other medicines. In east zone 60% people reported that herbal medicine's price was much higher than others while in north zone 47% people held this opinion. This variation is due to the fact that east zone is less developed in this respect as compared to north zone and the people of east zone are more price conscious. It is also evident from the result that low-income group is highly price conscious in comparison to upper income group. As consumers' income increases price perception of herbal medicine changes in that order. The figure implies that the majority of people desire that the prices of this medicine should be reduced.

Manufacturers need to readjust them to bring it in conformity with the consumers desired level.

The survey also shows that the customers are facing difficulty in purchase due to stock-out problem. The problem is higher in north zone in comparison to east zone. So the manufacturers must arrange the regular supply of their products.

The highest movement rate out of the twenty five selected herbal brands is achieved by '***Liv-52***' of Himalaya Drugs Company. According to an ORG Marg report "Liv-52 a liver formulation, which is also the flagship brand of the company, every one third of a second one unit of Liv-52 is bought somewhere in the world. It is ranked 'Number one' in the hepato protective lipotropic segment and number four among all pharmaceutical products in India". Second, third and fourth ranks go respectively to 'Pudin Hara', 'Chawan Prash' and 'Hajmola' all of Dabur Company. Hamdard Company's products 'Cinkara' and 'Safi' hold the fifth and sixth rank among selected products, while Pylex (Himalaya), 'Gasex' (Himalaya) and 'Himgoli' (Dabur) have got seventh, eighth and ninth position respectively. 'Deer.agheen' the product of Dawakhana Tibbiya College held the tenth slot out of the twenty five selected herbal medicines. None of the Rex Remedies' products have any position among the top ten products' slot. The results show that the products of Himalaya and Dabur Companaies have higher movement rates than others as these companies mostly prefer 'modern medicines dealers/ retailers' for the sale of their products. Whereas the other companies generally use the 'herbal medicine dealers/ retailers' for this purpose. So the herbal medicines' manufacturers are suggested that they should push up their products also through the modern medicines' dealers / retailers.

The result shows a high acceptability of herbal medicines marketing and it is also indicating that the future of herbal medicines market is brighter. Manufacturers should maintain this reputation, make an image among the dealers and give margin / profit to dealers' at a desirable level. This will be helpful in capturing the market.

In eastern zone supply of herbal medicine is more 'regular' than in north zone. On the whole, in all the segments more than 76% dealers / retailers indicate that the supply of these medicines is 'regular' followed by 21% indicating 'casual' and 3% 'rare'. The complaints on the irregularity are to be noted by those responsible for marketing these products in different segments. A regular supply is the essence of marketing so the marketers have to pay proper attention to check all sorts of hurdles in supply, as it is higher in north zone.

In a nutshell, it can be said that ignoring the tastes and preferences of customers will be suicidal in business for promoting and globalizing Indian herbal medicines. This industry has the power to face the new challenges. The herbal treatment has its roots in our country and it should be standardized and popularized the worldwide using the latest technology and the consumer-friendly production, processing and marketing techniques.

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2005

DEDICATED TO

MY BELOVED AMMI & ABBU

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Dr. Shamim Ahmad
Professor

April 6, 2005

CERTIFICATE

This is to certify that Mr. Md. Zulfeequar Alam has completed his doctoral research work entitled "Marketing Mix Determination for the Promotion of Herbal Medicines in India" under my supervision.

To the best of my knowledge and belief the work has been done independently by him under my guidance and the data generated and conclusions drawn are original and make a definite contribution to the subject under study.

I further certify that this research and its findings have not been used for submitting any dissertation or thesis in any university or institution for the award of any degree or diploma.

(Prof. Shamim Ahmad)

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PREFACE

Herbal products contain an enormous wealth of minerals, protein and vitamins. Moreover, herbal products have great nutritive and medicinal value too. The global wave of Herbalism and increased sensitivity to food ingredients has caused tremendous potential for herbal products in domestic market as well as abroad.

It is recommended to go for assessing the market potential and making a concerted and organized effort to turn this latent demand into an effective demand. This should aim at tapping the existing potential in the market by introducing an aggressive promotional campaign for the products. By adding the state-of-the-art kind of packaging to herbal products, they will emerge as branded premium products meant also for the elite class of the society rather than merely being cheap alternatives used only by the rural class. In this respect packaging is going to add a lot of value in the products. This will also help overcoming the apprehensions of the buyers about cleanliness, purity, freshness and consistency in quality of the product.

Herbal products are presently under very limited use. A number of variants of herbal products in solid, liquid and paste forms are needed for various market segments and for many uses of the products. To popularize it, we must introduce its use in more health care household products. The industrialists as well as the consumers of the relevant categories are to be persuaded to use the concerned herbal products. We have to suggest when, where and how to use each of the variant of herbal products. By popularising hundreds of its uses, the crude and simple herbal products can be made a necessary component of more decent and favorite cosmetics and toiletries, hair oils, dentifrices, perfumes, dishes, sweets, confectioneries and drinks. In a similar move, the industrial units of a number of categories may be communicated with through the promotional efforts highlighting the profitable use of herbal products as inputs in their output.

In this backdrop the following research project has been taken up for study. Taking into account the secondary as well as primary data (obtained by

an elaborate consumers', dealers' and doctors' survey in four cities of the two zones of the country) an effort has been made to sense the pulse of the market.

The presentation of the research results has been organized in the following order. Chapter one traces the history and evolution of the herbal remedies. The next chapter describes the adoption and acceptance of the products worldwide. A brief overview of the herbal medicine industry in India has been presented in chapter three. The review of literature has been done in the following chapter. Chapter five describes the methodological details and data used. Chapters six, seven, eight and nine elaborately analyse the survey results relating to the different marketing subjects. The last chapter provides a brief summary of the findings and recommendations for promotion of herbal medicine industry in the country.

Aligarh
April 2005

11-04-05
(Md. Zulfeequar Alam)

INTRODUCTION

INTRODUCTION

Herbal medicines have a long and respected history. Many familiar medications of the twentieth century were developed from ancient healing traditions that treated health problems with specific plants. Today, science has isolated the medicinal properties of a large number of botanicals, and their healing components have been extracted and analyzed. Many plant components are now synthesized in large laboratories for use in pharmaceutical preparations.

There are over 750,000 plants on earth. Only a very few of the healing herbs have been studied scientifically. And because modern pharmacology looks for one active ingredient and seeks to isolate it to the exclusion of all the others, most of the research that is done on plants continues to focus on identifying and isolating active ingredients, rather than studying the medicinal properties of whole plants. Herbalists, however, consider that the power of a plant lies in the interaction of all its ingredients. Plants used as medicines offer synergistic interactions between ingredients both known and unknown.

The power and potency of the healing herbs are very real. Every herbal treatment has specific healing properties, carefully balanced to create a particular action within the body. Natural medicines are not like manufactured drugs. Herbal preparations work gently, so they take time to act internally. Natural herbal preparations are generally well tolerated. Most herbs are nontoxic, with few, if any, harmful side effects.

Herbal medicine has a long history, and a time-tested, valuable place in the treatment of many common health problems. Because they act gently, herbs are particularly suitable for treating children. When using herbs to treat an illness, it does not only help to alleviate symptoms, but also to address an underlying problem and strengthen the overall functioning of a particular organ or system. Herbs are readily available, they can even be grown in ones own backyard. The user can be sure of getting the best and purest product

possible. The more you use herbs, the more comfortable you will become with this gentle and effective form of health care.

With the patent bill already in the process of taking the effect, allopathic medicines are gradually getting more expensive. Things will further deteriorate once the patent law is further amended and completely implemented in the country. Modern medicines are bound to go out of reach of the common man. Consultation fee charged by qualified doctors in the allopathic system of medicine is unaffordable by many. Further with the introduction of preventive diagnosis system, instead of clinical diagnosis, the entire process of medication has become highly time consuming and expensive. Regular doses of antibiotics make a person immune to the drug thereby resulting in no positive effect on the patient. All these ills of allopathic medicines are being noticed not only in India but world over.

This has resulted in a substantial demand for traditional systems of medicines, such as Ayurvedic and Unani. The demand for these medicines has increased several folds in the last few years. ***Chavan Prash*** and certain cold remedies in ***Ayurved*** are very popular among Americans too.

On the global front we are forced to import certain herbal medicines, especially those not found in the country, to meet the emerging domestic demand. The trend of import of herbal medicines shows that in the last few years our total import of herbal medicines (including herbs and formulations in bulk and the branded forms) has gone up manifold. But considering the export figures of the same herbal medicines' categories the problem does not pose any threat to us. Export figures of herbal medicines indicate the tremendous export potential for our producers. The present export of all the categories of herbal medicines is around four times of our total imports. In a span of last few years we have been able to increase our exports around four times. This is significant especially in the backdrop of very limited effort and focus to this category of export. Barring a few known exporters Like Dabur India Ltd. no concerted effort is made to promote the export of this particular category as a whole.

Despite this entire positive trend, there are not many companies manufacturing quality medicines in a presentable mode. The reason is the cost pressure on manufacturers who are incapable of transferring the rising raw material cost to the customers. Proper marketing, value-addition and consumer preferences are the matters mostly neglected in the whole process. Aromatic and medicinal plants also find usage in variety of consumer products like detergents, toiletries and soaps. But such problems are never faced there due to the modern approach of marketing in use.

The reason for this neglected state is the absence of any marketing effort on professional lines for the herbal medicines. In order to develop the market for indigenous medicinal formulations the expectations of the consumers in respect with product form, size, packaging, price, delivery etc. need to be studied and utilised. There is tremendous scope of value addition in such products. Due regard to the consumer needs will result in the increased demand. This consumer-friendly approach will help them switch over to herbal alternatives and therefore will have a two-pronged affect on the Indian economy:

- It will save hard cash from going abroad in buying allopathic medicines or license fee for manufacturing these medicines in India. Once the patent law is fully implemented it will provide alternate cheaper solutions by replacing the allopathic medicines with the locally produced herbal ones.
- It will help the nation in earning the hard currency by exporting the processed or raw forms of these herbal medicines to other nations.

The herbal medicines in the past had a faceless presentation and were sold on the strength of reputed and trusted *Vaids* and *Hakeems*. They are rarely visible now. The only option today is to give them ***presentability*** by way of proper branding, packaging and value for money. Though the primary role of good packaging is to preserve the product, increasing consumerism catalysed by a fast-paced lifestyle, has lent a new meaning to the term. Manufacturers of fast moving consumer goods (FMCG) are increasingly investing in attractive packaging and designing as their marketing tool to

attract the consumer. The constantly changing convenience needs of the end users and growing awareness of consumers towards health, hygiene and multifaceted concepts have provided the dynamics of the package propped up by the state-of-the-art sclutions. And meeting safety and statutory requirements has become more imperative than ever before.

Now with consumers shifting to branded products, even commodities like wheat flour, spices and salt are increasingly being packed and sold in branded form and flexible packaging is finding the market friendlier than ever before. The major differences of the Indian market when compared to its foreign counterparts are varying climates, consumer tastes and different retailing network. A packaging arrangement should hence be able to offer both a laminate which ensures shelf life and protection and at the same time be concerned about the consumer convenience and brand image of the product. High profile marketers like Hindustan Lever, Nestle and Proctor and Gamble always maintain their sway over their respective markets emphasising on the type, size and quality of their packaging. This is getting inevitable for the herbal medicine companies for their future survival.

Herbal products are presently under limited use. To popularize it, we must introduce new uses of the products. As on today herbal products are considered to be only of medicinal value. But in the past people had a life style of using natural herbs for most of their needs. People switched over to synthetic items later considering the benefits of cleanliness, purity, durability, convenience and economy factors. Now the conditions are changed. People if they wish to revert again to their habit of herbal products that will be caused by another set of factors.

We therefore need to develop new set of uses of herbal products to fit the present tastes, habits and the life style. Today, a number of variants of herbal products in solid, liquid and paste forms are needed for various market segments and uses of the products. Herbal products' essence, taste, nutritional value, digestive ease and medicinal value all these properties can be marketed in the form of a number of product lines of foods, beverages, cosmetics, toiletries, dentifrices, hair oils, perfumes and other consumer

goods. For this purpose the herbs can be classified and their different forms can be developed for well specified consumer and industrial uses. The products for consumer market will distinctly be different from those of the industrial market. In certain cases a particular industry will have its own preferences for the product attributes, sizes, packaging, price and distribution.

For consumer markets, careful market segmentation and targeting is needed for all the marketing decisions. In a number of product categories, a premium product and an economy product both may be required. The underlying concept is that for those who can afford paying extra for extra features, packaging and quality, a premium product with a high price tag is justified. For others an economy product is desirable.

The industrialists as well as consumers of the relevant categories are to be persuaded to use the concerned herbal products. When a number of forms, sizes and packages have been recommended, the next logical step is to suggest when, where and how to use it. It may be used somewhere to offer a herbal toothpaste or shampoo. It may be seen as a herbal nutritional hair oil. It may form the part of our cold drinks, sauces, chutneys and this way it becomes our breakfast or meal.

By popularising hundreds of such uses, the crude and simple herbs can be made a necessary component of more decent and favorite cosmetics, dishes, sweets, confectioneries and drinks. In a similar move, the industrial units in the following categories may be communicated with through the promotional efforts highlighting the profitable use of herbal products' inputs in their output:

a) Cosmetics & Toiletries
b) Dentifrices, Hair Oils & Shampoos
c) Perfumes, food essences & Colourants
d) Confectioneries
e) Jams, Jellies, Chutneys etc.
f) Sweet Shops
g) Bakeries

h) Processed Food Units

i) Juices & Breweries

j) Drug Manufacturers

All the above consumers and the industrial units, apart from knowing the uses, will also require enough justification for replacing other synthetic elements with herbal products. They may also require the herbs in the form of extract or essential oil or in paste form in convenient tubes/ jars. This calls for not only a modern packaging arrangement but also a promotional effort to make the public opinion favorable, which is explained below.

What we need to do here is to take an offensive in the market for survival and consistent growth. This approach may be termed as Aggressive Marketing. Here the attempt will be to extend the market potential by designing an aggressive marketing plan backed by a calculated dose of advertising, publicity and other promotional means.

A long-term plan is to be adopted for changing the mindset of end users i.e. the customers. Each and every person on earth may feel that nature has given us the pure and safe things and the chemically treated ones are harmful and dangerous. A short-run plan is needed to motivate and convince the wholesalers, dealers, manufacturers and the opinion leaders about the safety and standards of the proposed substitutions. The following text of the messages will have to be passed repeatedly to the targeted public.

- **Replace your synthetic items intake with the "Herbal" alternatives**
- The manufacture of ***synthetic items*** involves a **cocktail of chemicals**. Moreover, the processing of synthetic items is carried on in mild steel equipment, which leads to a high dosage of Nickel in the mother liquor.
- **Why Herbal products?** Herbal products are "Natural" WITHOUT the use of any chemicals/ synthetic active elements.
- **Herbal products** contain an enormous wealth of **minerals/ protein/ vitamins**.

- More importantly, herbal products have great **nutritive** and **medicinal value**. They are prescribed in the ***Ayurvedic*** and ***Unani*** systems of medicine.
- Ancient Medical scriptures dating back to 2500 years state how herbal products are good for our health and well being.
- It is no wonder that herbal products are regularly consumed by millions of industrial workers / rural folk who are exposed to higher levels of pollution. It helps them breathe easier and counter pollution naturally.
- We, therefore, recommend the replacement (*at least partially if not completely*) of synthetic items in your diet/ health care items with herbal products.

Branding followed by advertising, publicity and sales promotion will be needed brand-wise. Every individual brand will be distinctly positioned and publicized in the market. But the final say will be that of the end users who will pay for the finished products. When they start demanding the more natural things, the whole scenario will get changed. The channels will be bound to honor the preferences of the consumers. This is called a pull strategy used in marketing. This will ensure the real success for those offering the herbal products in the context of the present age.

CHAPTER - 1

HERBAL MEDICINE__THE PAST

&

THE PRESENT

HERBAL MEDICINE__THE PAST & THE PRESENT

World is endowed with a rich wealth of medicinal plants [1]. The use of medicinal plant is as old as human civilization [2], but in recent years their use has been growing in popularity. During the last two decades, because of issues on population ageing changes in patterns of common diseases and for other reasons, the use of traditional medicine has dramatically increased worldwide. [3]

A comprehensive term _'traditional medicine' refers both to traditional and alternative medicinal systems and includes traditional Chinese medicines, Indian Ayurvedic Medicines, Unani Medicine, Naturopathy, Homeopathy and various forms of indigenous medicines. In countries where the dominant health care system is based on modern Western medicines or where traditional medicine has not been incorporated to the national health care system, traditional medicine is often termed as complementary, alternative or non-conventional medicine. [4, 5]

According to World Health Organization about 80% of world's population relies on traditional medicines for their primary health care needs and most of this therapy involves the use of plant extract or their active components. [6]

The Chinese, Japanese, Indian and Native American cultures all have traditional system of herbal Medicine. In China & Japan the use of herbal remedies is officially promoted by a Government ministry and included in national health system. In India herbology is an ancient practice but it is still widely used in Ayurvedic system of medicine. Native Americans use herbs in a spiritual sense, placing emphasis on their purifying and clearing properties both physically & mentally [7]. Nowadays Herbal Medicine is the most popular form of Traditional Medicine / Complementary medicine used worldwide. [8]

History of Herbal Medicine

In Botany herbs refer to seed producing plants with non-woody stems that die at the end of growing season. In herbal Medicine the term herb is used closely to refer not only to seed producing plants but also bark, roots, leaves, seeds, flowers and fruits of trees. [9]

Herbal medicine is also called phytotherapy or phytomedicines; it has been practiced since the beginning of recorded history and specific remedies have been handed down from generation to generation. In ancient times medicinal plants were chosen for their color or the shape of their leaves. For example heart shaped leave were used for heart problems while plants with red flowers were used to treat bleeding disorders; this primitive approach is called the doctrine of signature. The practitioners determined the best use for each plant by trial & error. [10]

The formal study of herbs called as herbology dates back to the ancient cultures of the Middle East, Greece, China, and India. These cultures valued the power of nature and developed herbal remedies based on the plants found in their home environments. Written evidence of medicinal use of herbs has been found on Mesopotamian clay tablets and ancient Egyptian papyrus.

The first known compilation of herbal remedies was ordered by the king of Sumeria around 2000 B.C. and included 250 medicinal substances. The Materia Medica, written in the first century A.D. described referred later in this work includes 950 medicinal products out of which 600 come from plants and the rest from animal or mineral sources. [11]

The Arabs added their own discoveries to the Greco-Roman texts, resulting in a compilation of more than 2000 substances. Eventually this work was re-introduced to Europe by the Christian doctors traveling with the crusaders. [12]

In the United States, herbal remedies handed down from European settlers and learned from Native Americans were a stronghold of medical care until the early 1990s. The rise of technology and the bio-medical approach to health care ultimately led to the decline of herbal Medicine. [13]

Therapeutic use of Herbal Medicine

Herbal remedies are used primarily to treat minor health problems, such as nausea, colds and flues, cough, headache, aches and pains, gastroenterology disorder (such as constipation and diarrhea) menstrual cramps, insomnia, skin disorder and dandruff. These therapeutic uses also serve as a method of categorizing herbal remedies.

Some herbalists have also reported success in treating certain chronic diseases, such as peptic ulcers, colitis, rheumatoid arthritis, hypertension and respiratory problems (such as bronchitis and asthma) as well as illness generally treated only with prescription drugs such as heart failure, hepatitis and cirrhosis [14]. Many physicians believe in the usefulness of alternative medicine especially in the cases where conventional medicine cannot provide a cure. [15]

In the Modern Medicine many drugs in common use today have botanical origins. Here is a select list. [16]

- Aspirin (salicylic acid) –from white willow bark and meadowsweet plant.
- Atropine used to treat irregular heartbeats-from belladonna leaves.
- Colchicine used for gout-from autumn crocus.
- Digoxin (Lanoxin), the most widely prescribed heart medication-from foxglove, a poisonous plant.
- Ephedrine, used to widen or relax the airways-from the ephedrine plant.
- Morphine and codeine, potent narcotics-from the opium poppy.
- Paclitaxel (Taxol), used to treat metastatic ovarian cancer-from the yew tree.
- Quinine, drugs for malaria-from cinchona bark.

- Vinblastine (Velban) and Vincristine (Oncovin), anticancer drugs-from periwinkle.

Research in Herbal Medicine

Several studies have been conducted on herbal remedies in Europe and Asia, where phytomedicine has a long history. European studies have shown benefits from such herbs as ginkgo, bilberry extract, and milk thistle in treating various chronic disorders. Chinese researchers have done extensive studies on many herbs, such as ginseng, fresh ginger rhizome, foxglove, licorice root, and wild chrysanthemum. And Indian researchers using modern scientific methods have recently studied various Ayurvedic herbs, including Indian gooseberry and turmeric.

Classification of Herbal Medicine

Their effects on patients commonly classify herbs as follows.

- Adoptogenic herbs work on the adrenal gland to increase the body's resistance to illness.
- Anthelminic herbs work to eliminate intestinal worms from the body.
- Anti-inflammatory herbs reduce the tissues' inflammatory response.
- Anti microbial herbs boost the immune system by destroying disease causing organism or helping the body resist them.
- Anti spasmodic herbs ease skeletal and smooth muscle cramps and tension.
- Astringent herbs applied externally work on the mucous membranes, skin, and other tissues to reduce inflammation, irritation and the risk of infection.
- Bitter herbs work on the control of nervous system, playing a major role in preventive medicine. Bitter herbs are recommended to increase the secretion of digestive juices, stimulate the appetite, and promote liver detoxification.
- Carminative herbs (aromatic oils) stimulate proper function of the digestive system, soothe the living of the GI tract, and reduce gas, inflammation & pain.

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- Demulcent herbs, rich in mucilage, sooth and protect irritated & inflamed tissue.
- Diuretic herbs increase the production and elimination of urine.
- Immunologic herbs stimulate menstrual flow.
- Expectorant herbs work to eliminate mucus from the lungs.
- Hepatic herbs work to increase strength and tone up the liver and increase the flow of bile.
- Hypotensive herbs work to decrease abnormally high blood pressure.
- Laxative herbs relieve constipation.
- Nervine herbs are divided into three groups based on their role in helping in the nervous system. Those that strengthen and restore those that ease anxiety and tension and those that stimulate nerve activity.
- Stimulating herbs stimulate the body's physiologic and metabolic activities.
- Tonic herbs, the foundation of traditional Chinese medicine and Ayurvedic (Indian) medicine, enliven and invigorate. [17]

Forms of Herbal Preparations

Herbs are available in various forms depending on their medicinal purpose and the body system involved.

Herbs may be prepared as tinctures or extracts, capsules or tablets, lozenges, teas, juices, vapor treatment, or bath products. Some herbs are applied topically with a poultice or compress. Others are rubbed into the skin as oil, an ointment, or salve. [18]

Tinctures and Extracts

An herb placed in alcohol or liquid glycerine is called a tincture or an extract, (tinctures contain more alcohol than extracts). Alcohol draws out the herbs' active properties, concentrating them and helping to preserve them. Alcohol is cheap, it is easily absorbed by the body, and allows the herbs' full taste to come through. Alcohol based tinctures and extracts have an indefinite shelf life. Liquid glycerin extracts called glycerite are an alternative to alcohol

extracts. Glycerite are generally sweet to the taste and feel warm to the tongue. Glycerin is processed in the body as a fat, not as a sugar. [19]

Capsules and Tablets

Capsules and tablets contain the ground or powdered form of the raw herb. They are easier to transport and typically are tasteless. The capsule or tablet should be made within 24 hours of milling the herb because herbs degrade quickly. The best products use fresh herbs, which should be indicated on the label. Capsules may be hard gel or soft gel made of animal or vegetable gelatin. [20]

Lozenges

Herbal lozenges are nutrient-rich naturally sweetened preparations that dissolve in the mouth. They come in various formula such as cough suppressant, decongestant or cold fighting. Most lozenges are boosted with natural vitamin C. The horehound lozenge, one type that has become popular, is used to relieve cough and minor throat irritation. [21]

Teas

Herbal teas can be made from most herbs. Teas are used for a wide range of purposes, with formulations aimed at specific conditions or desired effects. They are generally prepared by infusion or decoction. A mixture is prepared by allowing dried herbs to steep in hot water for three to five minutes. Putting the herbs into a rolling boil of water for fifteen to twenty minutes makes a decoction. This method is preferable for denser plant materials, such as roots or bark. Teas may be steeped in a muslin or square tea bag or tea ball or used in loose form for their fragrant and aromatic flavors. [22]

Juices

Washing fresh herbs under cold runnier water makes juices, cutting them with scissors into suitable pieces and runnier them through a juice extractor until they turn into a liquid. Usually herbal juices are taken by placing

a few drop in tea or spring water. They may also be applied externally by dabbing them on the affected body part. Fresh juices should ideally be taken immediately after extraction; however they may be stored in a small glass bottle, corked tightly, and refrigerated for several days without appreciable loss of vital properties. [23]

Vapor and Inhalation Treatments

Many herbalists recommend herbal vapor and inhalation treatments for respiratory and sinus conditions. The treatment helps open congested sinuses and lung passages, promote mucus discharge and ease breathing. One inhalation method requires a sink and herbal oil. The sink is filled with very hot water and two to five drops of the herbal oil are added. Hot water should be allowed to filter into the sink to keep the water hot. As the mixture becomes diluted, a few more drops of the herbal oil may be needed. The steam should be inhaled for five minutes.

Another method involves heating a large wide pot of water, adding a handful of dried or fresh herbs and bringing the pot to a boil. After the herbs have simmered for five minutes, the pot is removed from the heat and placed on a trivet to cool slightly. With the pot on a stand, the user adds four to five drops of the oil and then drapes a towel over his head to form a tent and leans over the pot, inhaling the steam for five minutes. [24]

Herbal Bath

An herb that is a soluble agent such as baking soda or aloe gel may be dissolved in hot bath water. Use fresh or dried herbs in a square of cheesecloth or place them in a washcloth and bind the cloth securely. The goal is maximum release of the herbal essence without having parts of herbs floating in the bath water. Full bath requires about 6 ounce (170 g.) of dried or fresh herbs. [25]

Poultices and Compresses

A poultice is a moist paste made from crushed herbs that is applied directly to the affected area (or wrapped in cloth to keep it in place and then applied). Poultices are especially useful in treating bruises, wounds, and abscesses. A compress is made by soaking a soft cloth in a strong herbals tea, tincture, glycerite oil, aromatic water and then wringing it out and applying it to the effected area. Compresses are effective for bleeding bruises, muscle cramps, and headaches. Only fresh herbs should be used for poultices. [26]

Oils, Ointments, Salves, and Rubs

Herbal oils are usually extracted from the peels of lemons, or oranges or other citrus fruits. Because they may be irritating to the skin they are commonly diluted in fatty oils or water before being topically applied; essential oils are used in massage and aromatherapy and diluted oils can be used to prevent skin irritation. To make an oil, the fresh herbs are first washed and left to dry over night .The herbs are then sliced, placed in a glass bottle or jar and covered with virgin olive oil, almond oil or sun flower oil. The container is covered tightly and allowed to stand in a very temperate area, such as on a stove or in the sunshine for two weeks. The oil should be strained before use.

Herbal ointments, salves and rubs are applied topically for various conditions. Some examples are: Calendula ointment for broken skin and wounds, Goldenseal for infection, rashes and skin irritations, Aloe Vera gel for minor burns, and heat producing herbs for muscle aches and strains. The commercial verities are usually more appealing than homemade concoctions. [27]

Herbal Medicine in India

Herbal therapy is also a major component of Indian system of medicines like Traditional Chinese medicines, Native American medicines, homeopathy and Naturopathy.

In India, herbs have always been the principal from of medicine. India has the unique distinction of having six recognized systems of medicine under Indian system of Medicine and Homeopathy (ISM & H).

All drug based systems under ISM&H namely Ayurveda, Siddha, Unani, and Homeopathy largely use herbal medicine as raw materials for the preparation of drugs. [28]

The Ayurveda System of Medicine

Ayurveda is not only a system of medicine, to a certain extent it is a way of life. Its objective is to achieve physical, mental, social and spiritual wellbeing by adopting preventive and promotive approaches as well as treating diseases with the holistic approach. [29] [30] [31]

The word Ayurveda is composed of two terms, *"Ayus or Ayuh"* meaning life and *"Veda"* meaning knowledge or science. Thus etymologically, Ayurveda means the science of life. Medicine apart, various other aspects of life come within the purview of Ayurveda. In its broader sense it deals also with the health and treatment of diseases of animals and even plants. It may be noted here that Ayurveda is often misleadingly referred to as Hindu medicine. Though Ayurveda was developed in ancient India, it has long been practiced in other countries also. It is true, however, that the practitioners in India have been predominantly Hindus. [32]

It is claimed that Ayurveda provides rational means for the treatment of many internal diseases which are considered to be obstinate and incurable in other systems of medicine. [33]

The Ayurveda system of medicine is said to be the oldest and most complete medical system in the world and dates back to about 5000 B.C. "Its roots are in ancient Indian civilization and Hindu philosophy, and it has been an important influence on the development of all the other eastern medical systems". [34]

The source of Ayurveda is the Vedas and the text known as the *Samhitas* which give a treatise on health care and describe medical procedures. From the historical point of view, Ayurveda is divided into five periods:

Vedic Period

India is known as land of Vedas. The word *veda* refers to true knowledge. In vedic age *Atharva veda* has more guiding principles about medicinal effects of herbs etc. mentioned in it. So *Atharva Veda* has been structural foundation giving rise to Ayurveda and it constitutes a separate branch of science or knowledge. It would be a difficult task to determine the time of origin for Vedas. Historical descent of Ayurveda upto Indra has been termed as Vedic period. It is believed that *Maharishi Bhardwas* required the knowledge of Ayurveda for the benefit of mankind. Thus it is clear that Ayurveda was not within the reach of mankind before *Bhardwas*. He taught this subject to others including *Atrya*. In this period Ayur Veda was not a separate branch of science. It would be logical to state that the development of Ayurveda started with collection of health care information spread in Vedas.

Samhita Period

"*Samhita*" means "compilation of knowledge". In this period compilation of treatises on Ayurveda was started. So it is known as *Samhita* period. The length of this period between *Atrya* to *Gautam Buddha* is generally termed as *Samhita* period. The history of Ayurveda based on available facts of *Atrya's* period was considered to be around 1000 B.C. old. Thus *Samhita's* period is the time between 1000-6000 B.C. To the existing indication *Maharishi Krishna Atrya* initiated process of knowledge. He spread his knowledge while moving from one place to other place throughout the country. He was also known by *Charaka* (*char* means to move and the one who moves is *Charaka*). There were six disciples of *Atrya*, who developed the schools of medicine that were *Agnivesha, Bhhela, Jatukarna, Parasara, Harita and Kasarpani.* Out of these *Agnivesha Samhita* was well accepted and was propagated as the backbone of *Ayurvedic Samhitas* (compilation).

Similarly, *Divodosa* developed the school of surgery. Its disciples are *Aupadhenava, Vaitarana, Aurabhara, Poushakalvata, Gopurarakshila* and *Shushruta*. It deals with a complete organized approach to *Shalyakirya* (general surgery) & *Shalakya tantra* (eyes, ear, throat & nose). The period *Sushruta Samhita* is considered to be just before the Buddhist period. The other available *Samhitas* also belong to more or less the same period. During this period, it is interesting to note that most of the information was centered on plants.

Buddhist Era

In the history of Ayurveda, Buddhist era could be stated as golden period. In this period every division of Ayurveda was heuristic due to the involvement of different scholars. The period of *Gautam Buddha* is more or less established around 600 B.C. Development of Ayurveda during Buddhist period was due to a clear support of *Gautam Buddha* himself. By this time Ayurveda in India took a major advancement by the introduction of an eight years long professional course at *Takshshila* (presently in Pakistan) in around 700 B.C. Nalanda University in Bihar also followed this course.

Jeevika and *Nagarjuna* were chief personalities and *Vriddha Jeevika Kashyapa samhita, Shalya tantra, Shalakaya tantra, Agada tantra, Vajikarna* treatises were main compilations of that time.

The Mediaeval Period

The duration of mediaeval period is known as between 8th century to 18th century A.D. Due to the overseas administration of power in this country the practice of Ayurveda was neglected. *Unani hikmat* (Greco-Arab medicine) was established during this period. Around this time the work of Avicenna (985-1040) enriched Greco-Arabic medicine. During later period the Canon of Medicine (in 5 vol.) was taught in the medical institutions of many European countries and influenced the concept of medical sciences there. By this time the Hippocratic Medicine having spread into Europe in the name of allopathic (To treat body opposite the system) made few strides in 1547; Andreas

Versalis compiled a textbook on human anatomy. In 1590 a Dutch optician Zacharias Janseen invented microscope. This instrument piayed an important role in later discoveries concerning medicines.

Throughout this period a substantial number of new Ayurvedic books were compiled. Most of these are *Madhva Nidana, Sir Gangadhar Samhita, Kalyanakaraka, Parahita samhita* etc. [35]

Modern Era

In this period the *Mughal* Empire was in power for about a total period of 150 years. After the end of 16th century the allopathic doctors came from Portugal, France and England, who reached all important cities. After *Mughal* period Britain established his rule in 1765 A.D. through the East India Company. The Government then started National Medical College at Calcutta. Parallel to Allopathic Medical College, Traditional Medical College was also started. In 1827 a medical course was started in Sanskrit College and the core curriculum had both Ayurveda and Allopathic system. In 1835 onwards parallel to allopathic medical college, vernacular medical colleges were also started. In 1885 Indian National Congress was progressively getting active. In 1908 All India Ayurvedic Congress was started with a view to protect & propagates the value of the great scientific tradition of the nation. In 1925 School of Indian Medicine came into existence.

Research in Ayurveda had also attained a dimension by the studies conducted by *Dr. Darkanskth* at the Faculty of Medicine, Hamburg University Germany during 1935-37. He was first to demonstrate that gold processed as prescribed by Ayurveda is absorbed and metabolized by the body.

In 1947 India acquired independence from British rule and became a democratic republic in 1950. Developments of Ayurveda in India after independence were in various aspects.

The integrated approach of Ayurvedic education started by the efforts of Dr. Leucas continued for about one more decade. The parallel institutions were

started by All India Ayurvedic Congress concurrently. In 1969 all the colleges imparting education in Ayurveda or the Indigenous system of medicines were affiliated to respective universities.

In 1970 Central Council of Indian Medicine was constituted to work for maintenance & up-gradation of standards of education in Ayurveda. Now there are a few institutions of national repute which are conducting different programs/ courses in the field of Ayurveda. A number of hospitals and dispensaries run by the government, local administration provide treatment to the needy, employing Ayurvedic methods.

Research in Ayurveda

Research in Ayurveda with clearly defined objectives and well-designed protocols is the need of hour. A deliberate effort to carry out integrated and coordinated research on medicinal plants promoted after careful discussion and consultation with reputed Ayurvedic & Unani physicians was made for the first time in India by the Indian Council of Medical Research (ICMR). In 1970 this scheme was transferred to the newly constituted Central Council for Research in Indian Medicine & Homoeopathy (CCRIMH). Recently two autonomous bodies, The Council for Research in Ayurveda & Siddha and Central Council for Research in Unani Medicine have been constituted after winding up the CCRIMH.

There are different research programs under the CCRAM; these are Clinical Research Program, Health Care Research Program, and Drug Research Program. [36]

Philosophy of Ayurveda

The philosophy of Ayurveda is based on the theory of *Panchmahabhutas,* i.e. five element theory of which all the objects and living bodies are composed of the combination of these five elements and are represented in the from of *Tridosa* e.g. *Vata* (Ether + Air), *Pitta* (fire) and *Kaph* (Water + earth). These three *doshas* are physiological entities in living being.

These are also known as three humors. The mental, spiritual and physical attributes are described as *Satva*, *Rajas* and *Tamas*. Doctrine of Ayurveda aims to keep these structural and functional entities in a state of equilibrium which signifies good health *(swastha);* any imbalance due to internal or external factors causes disease and restoring the equilibrium through various techniques, procedures, regimen, diet and medicine constitutes the treatment. [37]

The treatment in Ayurveda system is individualized treatment and has two components (a) preventive and (b) curative. Preventive aspect of Ayurveda is called *savasth vrill* and includes personal hygiene, regular daily routine, appropriate local behaviour and *Rasayana sevana* i.e. use of rejuvenate materials / food & drugs. The curative treatment consists of three major categories of procedures:

(I) *Aushadhi* (drugs) (ii) *Anna* (diets) and (iii) *Vihara* (Exercise and general mode of life). [38]

The Unani System of Medicine

The Unani system of medicine is based on its well-established knowledge & practices relating to promotion of positive health & prevention of disease. The Unani system emphasizes the use of naturally occurring; mostly herbal medicine, though it uses ingredients of animal and marine origin too. (39)

The Horizon of Unani Tibb

Unani medicine originated from Greece under the patronage of *Buqrat Hippocrates* (460 BC-377 BC), a Greek Physician who is also known as the father of medicine and he developed this branch of knowledge. From treating the patients he specially built a compound where patients declared incurable used to be under his treatment. Besides this, people from distant places also used to come to him for learning this art (Unani system of treatment). By this way the system progressed. [40]

Some eminent personalities are *Arestu* (Aristotle) and *Jalinus* (Galen) (131-210 A.D.). *Ibne-Betar* made an edge in this field.

Al Razi (850-923 A.D.) is regarded as a distinguished physician in the history of Unani *Tibb*. He devoted his life in library and clinical research. After his death, his disciples edited the material collected by him. His book *Al-Hawi* was translated into Latin in 1486 and published in 1547 A.D. He was the first physician who described about small pox and measles in his valuable treatise. *Al-Hababa-wa-al-juduri*, which is considered as the best heritage of Unani *Tibb* was written by him. [41]

Ali-Ibne-e-Sina (980-1037 AD) is the chief renowned figure of Unani *Tibb*. His famous book of medicine is *'Al-Qanoon Fit Tibb'* (The encyclopedia of medicine). This book was written in five volumes. [42]

These physicians had done all the work and rendered their services purely on humanitarian grounds for the ailing people. They incorporated all knowledge and experience in books for their successors. These books had elaborately described and discussed the medicines, herbs, their properties, their medicinal traits and identification and direction and so on.

Ibn-e-Betar (1248 AD) traveled to many countries for collecting and arranging the properties of various medicines for his books, which also contain illustrations of all the herbs and medicine. [43]

His book *'Al-Jami Li-Mufradat Al-Adviye wa Al-Aghziyah'* holds all Greek and Arabic literature on botany and materia medica.

During the middle age *Abul Qasim Al-zahrawi* was the most frequently quoted surgeon. His book *Al-Tasrif*, was used as a text book upto the beginning of the 17th century. After *Abul Qasim Al-zahrawi*, Hippocrates systemized the *Tibb* and gave the status of science to it. Unani medicines imbibing what was best in the contemporary systems of traditional medicine in Egypt, Syria, Iraq, Persia, India, China and other Middle East and Far East countries enriched Unani medicine. It also benefited from the native medical

system in craze at the time in various parts of Central Asia. That is why this system is known, in different parts of the world, with different names such as Greco Arab Medicine, Ionian Medicine, Arab Medicine, Islamic Medicine, Traditional Medicine, Oriental Medicine, etc. [44]

Unani Tibb in India

In India, Unani system of medicine was introduced by the Arabs, and soon it took firm roots in the soil. When Mongols ravaged Persian and Central Asian cities like Shiraz, *Tabrez and Geelan*, scholars and physicians of Unani Medicine fled to India. The Delhi *Sultans_ the Khiljis*, the *Tughlaqs* and the *Mughal* Emperors provided state patronage to the scholars and even enrolled some as state employees and court physicians. During 13th and 17th century Unani Medicine had its hey-day in India. Among those who made valuable contributions to this system in the period were, to name only a few, *Abu Bakar bin Ali Usman Kashani, Sadruddin Damashqui Bahwa bin Khwas Khan, Ali Geelani, Akbar Arzani and Mohammad Hashim Alvi Khan.*

The scholars and physicians of Unani Medicine who settled in India were not content with the known drugs but they subjected Indian drugs to clinical trails and as a result of their experimentation added numerous native drugs to their own system, thus further enriching its treasures. The system found immediate favours with the masses and soon spread all over the country and continued to hold an unchallenged way for a long period even after the downfall of *Mughal* Empire.

During the British rule Unani Medicine suffered a slow down and its development was hampered due to withdrawal of governmental patronage. But since the system enjoyed faith among the masses it continued to be practiced. It was mainly the *Sharifi* Family in Delhi, the *Azizi* family in Lucknow and the *Nizam* of Hyderabad due to whose efforts Unani Medicine survived in the British period. An outstanding physician and scholar of Unani Medicine, Hakim *Ajmal Khan* (1868-1927) championed the cause of the system in India. The Hindustani Dawakhana and the Ayurvedic and Unani Tibbiya College in Delhi are the two living examples of his immense contribution to the multi-

pronged development of the two Indian systems of medicine_ Unani Medicine and Ayurveda. [45]

The development of Unani Medicine as well as other Indian systems of medicine gained considerable momentum after independence. Even prior to independence, a health survey and development committee were appointed in the year 1943 by the Government of India. The committee underscored the future role to be played by the indigenous systems of medicine in India. In 1946 the conference of Health Minister resolved that adequate provision should be made at the center and provinces for research in indigenous system of medicines. The Government of India established Central Council for Research in Indian Medicines and Homeopathy in 1969 to develop scientific research in different branches of Indian System of Medicine viz. Unani Medicines, Ayurveda, Siddha and Homeopathy etc.

The council's Research programmes comprise clinical research, drug standardization, survey and cultivation of medicinal plants and literary research, Mobile Clinical Research Programme, Unani Treat center and specialty clinic at Dr. Ram Manohar Lohia Hospital, New Delhi, Drug Standardization Research Programme, Extramural Research Projects, participation in the exhibitions and health Camps etc.

At present the unani system of medicine with its own 42,445 recognized practitioners is engaged in health care; 39 under graduate and 5 post graduate colleges are imparting education and about 462 pharmacies are manufacturing unani drugs.

As far as unani medicine is concerned, today India is the world leader. The government of India is providing increasing support and funds for the multi pronged development of unani medicine as well as other indigenous medical systems, to draw the fullest advantage of these systems in health care delivery to the masses and attain the cherished goal of health for all.

Treatment in Unani System of Medicine

Treatment in Unani system of Medicine is done mainly through diet control for simple diseases. In the initial stages treatment is done by administration of single drug, failing this treatment compound preparation may be administered. There are various treatment techniques namely *Ilaj-bit-tadbeer* (Regimental therapy), *Ilaj-bil-ghiza* (Dieto therapy), *Ilaj-bid-dawa* (Pharmaco therapy) and *Jarahat* (Surgery).

The Regimental therapy (*Ilaj-bit-tadbeer*) includes methods such as vensection, cupping, diaphoresis, dieresis, bath, massage, metastasis, and cauterization, among others.

Dieto-therapy (*Ilaj-bil-ghiza*), aims at treating certain ailments by controlling the intake of food and regulating the quality of the food.

Pharmaco therapy (*Ilaj-bid-dawa*) the physicians use naturally occurring drugs which mostly are herbal based, the advantage with the naturally occurring drugs is that most of them do not have any harmful side effect.

Surgery (*Jarahat*) has also been in use in this system for quite long. In fact, the ancient physicians of Unani Medicine were pioneers in this field and had developed their own instruments and techniques. But at present any minor surgery is in vogue in this system. [46]

In Unani Medicine Single drugs or their combinations in raw form are preferred over compound formulations. The naturally occurring drugs used in this system are symbolic of life and are generally free from side effects. And such drugs which are toxic in crude form are processed and purified in many ways, before use. In Unani Medicine general preference is for single drugs, compound formulations are also employed in the treatment of various complex and chronic disorders.

Unani System is Based on Humoral Theory

Unani system is based on the Hippocratic theory, which a perfect balance of *arkan* (elements) *Akhlalat* (humors) and *Mizaj* (temperament) helps in keeping the body and mind healthy. Every individual has an inherent power of self perfection the *Quwat-e-Modabira.*

According to the Unani theory, the humors and medicinal plants themselves are assigned temperament. The theory pre-supposes the presence of four humors in the human body, blood (*Dum*), phlegm (*Balgham*), yellow bile (*safra*) and Black biles (saoda).

Dum comprises all red fluids of the body, while all colourless fluids are classified under balgham, similarly yellow fluids are safra and black fluids are saoda.

The mizaj (behavioral pattern) of a person is expressed by the preponderance of a particular humor. A temperament may be, *Damvi* (Plethoric or Sanguine), *safravi* (Choleric or bilious), *Balghami* (cold or phelgametic) and *saodavi* (Melacholic). [47]

Diagnosis in Unani Medicine

A distinctive feature of Unani medicine is the emphasis on diagnosing disorders primarily through the *Nabz* (pulse). The physicians also resort to pathological test on *baul* (Urine) and *braz* (stool). [48]

Sidha System of Medicine

Sidha system is one of the oldest systems of Medicine in India. The term Sidha means 'achievements' and *siddhars* were those saintly persons who achieved 'result' in medicine.

Sidha literature is in Tamil and it's practical in Tamil speaking parts of India and abroad. This system is mostly therapeutic in nature. The Sidha Medicines that contains mercury, silver, arsenic, lead and sphere have been

found to be effective in treating certain infectious diseases including venereal diseases. More research into the efficacy of these medicines is presently in progress.

At present Sidha System has 2 under graduate Colleges, 2 postgraduate Colleges, 16,599 registered practitioners and 385 licensed pharmacies. [49]

Diagnosis and Treatment

The diagnosis of disease is involved in identifying its cause. Identification of causative feature is through the examination of pulse, urine, eyes, study of voice, colour of body, tongue and the status of the digestive system.

The Siddha system of medicine emphasises that medical treatment is oriented not merely to disease but has to take into account the patient's environment, the metrological consideration, age, sex, habit, diet etc.

This system is effective in treating chronic cases of liver, skin disease 'psoriasis', rheumatic problems, anemia, prostate enlargement, bleeding, piles & peptic ulcer. [50]

Homeopathy

Homoeopathy is a specialized method of drug therapy of curing natural diseases by administration of drugs. This has been approximately proved to pass the power of producing similar artificial symptoms on healthy human beings. A German Dr. Christian Friedrich Samuel Heinemann (1755-1843) is the father of Homeopathy who discovered the fundamental principles of Homeopathy. [51]

Homeopathy in India

This system came to India during the lifetime of Heinemann when a German physician and geologist arrived here around 1810 A.D, and treated patient with this principle. It got official patronage in 1839 when Dr. John

Marlin Honigberger, a disciple of Heinemann revisited India and successfully treated Maharaja Ranjit Singh of Punjab. [52]

Basic Principles of Homeopathy

The first principle, Simila simlibus curentur, states that a medicine, which can induce a set of symptoms in healthy human beings, would be capable of curing the similar set of symptoms in disease state. [53]

The second principle of single medicine advocates one medicine at a time for a particular patient during the treatment. The third principle minimum dose advocates use of least potent dose of the drug, which would provide full and complete cure without any side effects. The treatment stresses on individual's response to the specific environment. It is the individual person who is treated in homoeopathy and not the diseases.

Preparation of Homeopathy Medicine

In this medicine system, medicines are prepared from natural sources viz. herbal vegetable, mineral, animal, etc. There is no toxic or poisonous effect of these medicines since it is not the chemical or physical properties that are acting on the human system. [54]

Strength of the System

Homeopathy has its own areas of strength in therapeutics. Its curative capability extends to allergic manifestations, autoimmune disorders and viral infections. Many surgical gynecological & obstetrical conditions, ailment effecting eyes, nose, ear, teeth, skin, sexual organs etc. are amenable to the homeopathic treatment. The physicians of this system successfully handle behavior disorder neurological problems, metabolic diseases etc. Homeopathy has effective answer to addiction to drugs, tobacco and alcohol and highly efficacious in elimination of addicts and their craving for these harmful substances.

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CHAPTER - 2

ADOPTION OF HERBAL MEDICINE WORLDWIDE

ADOPTION OF HERBAL MEDICINE WORLDWIDE

The pressure of modern living has become more intense as it becomes increasingly difficult to reconcile the conflicting demands of social and working life. Consumers have to manage pressurized and increasingly hectic working lives, while at the same time have to balance social and family life. Consumer needs for re-energizing and relaxing their bodies and minds is driving of the growth the whole range of alternative therapies such as Ayurveda, Unani, Homeopathy and Acupuncture etc.

This also represents a reaction against modern medicine and a desire to seek out more holistic, natural alternatives that are perceived to be healthier.

Herbs have always been the principal forms of medicine in India and presently they are becoming so throughout the developed world, as people strive to stay healthy on the face of chronic stress and pollution and to treat illness with medicines that work in concert with the body's own defense. People in Europe, North America and Australia are consulting trained herbal professionals and are using the plants-based medicine.

Global Acceptability of Herbal Medicines

As we know that herbal medicine is the most popular form of traditional (Alternative/ complementary) medicine. A high level of interest and acceptance of alternative medicine among general practitioners has been reported in recent years. [1]

According to the Hindustan Times "Centuries old Ayurvedic System of medicine can be of remarkable success in treatment of many diseases like spondylitis, arthritis, depression, migraine, skin disease and paralysis etc, if followed under proper guidance. [2]

Due to an increase in the cost of allopathic medicine treatment, the incidence of self-medication has increased and many families prefer to try some

remedies and alternative therapies before consulting a qualified medical practitioner. [3]

According to a report, alternative medicine is no longer thought to be harmless. Many studies give a warning about the possible dangers of using alternative medicine. It has been reported that the use of ginseng, a traditional Chinese herb, has caused intoxication requiring clinical alternation. [4]

In Africa, upto 80% and in India 65% of the population depends on traditional medicine to help meet their health care needs. Elsewhere in Asia and in Latin America, historical circumstances and cultural beliefs mean that population continues to use traditional medicine. In many developed countries certain complementary and alternative medicine therapies are popular. The percentage of population that has used complementary / alternative medicine at least once is 49% in France, 42%, in USA and 31% in Belgium. [5]

In Ethiopia 90%, in Benin 70%, in India 70%, in Rwanda 70%, in Tanzania 60% and in Uganda 60% of population is using traditional medicine for their primary health care solution. [5]

According to the World Health Organization report, traditional (complementary / alternative) medicine is used for the full spectrum of disease from self-limited to life threatening illness. For example a WHO Rollback Malaria programme reported that in Ghana, Mali, Nigeria and Zambia, the first line of treatment for more than 60% of children with high fever is the use of herbal medicine at home. A survey shows that over three-quarters of AIDS patients in Africa, North America and Europe use traditional or complementary medicine for various symptoms of conditions. [6]

Worldwide TM/CAM is used to treat chronic pain and to improve the quality of life of those suffering from incurable disease; in the modern society traditional medicine is increasingly used worldwide. One of the main reasons is effectiveness. For example, a survey report of consumer & patients who have used traditional medicine treatment in different countries showed that in Belgium 77% consumers and patients feel satisfied and in Denmark, 77%

consider themselves be cured by traditional / alternative medicine, only 17% have no effect and 10% worsened. In Vietnam, 100% effectiveness was reported but slower than western medicine. [7]

In USA, 66% women have confidence in the safety of herbal medicine and 37% women assume effectiveness of herbal medicine, even 57% doctors believe herbal medicine have good benefits. [8]

Some scientific research data also showed efficacy of the herbal medicine. For instance, a summarized randomized clinical trail showed benefit of 34% trails could compare to the placebo control group. Although 48% report the benefit were unlikely due to design or analytic flaws. [9]

Global Market of Herbal Medicine

The market potential is very high if the growing acceptance of the herbal medicinal philosophy continues, with its emphasis on holistic, longer term and generally softer treatment and due to the fear of the pharmaceutical industries declining levels of innovation and growing concern over the side effects of medicine. The increase in the incidence of immune system related diseases such as AIDS and mylalgic encephalopathy is another plus, as is the aging population with the greater preponderance of chronic illness, which comes with age.

Asian consumers show an inclination towards these natural products with its huge population and growing income. Asia is fast becoming the most favourable destination for the multinational companies. [10]

Two clear trends appeared in these markets diversification and the increasing use of natural herbal ingredients. The use of herbal ingredients is part of a wider plan caused by Asian consumers' trend that has developed out of the use of Traditional Asian Medicines.

These traditional medicines have always placed great emphasis on prevention, which means taking regular preventive products. This has created

a climate whereby consumers are accustomed to taking daily medication and actively seek out products with health preserving properties.

David McAlpine, Director of MTW'S Herbal Medicine Division said that the largest national market for herbal medicine was Western Germany with estimated annual sales of $2.2 billion and per capita consumption of $36.55 followed by the USA with sales of $895 million but per capita consumption of only $3.60. Denmark well down the list of annual sales at only $30.2 million has annual per capita consumption of $ 26.66. Three companies have sales a high as $ 100 million a year (Schavabe of Germany Bioforce of Switzerland and Dabur of India). [11]

In recent years many foreign enterprises, especially those in Europe and the United States have invested in the research and development in view of the higher growth in chemical based medicines market. With higher advantages in extraction and processing technology, packaging and marketing of these enterprises have not only secured an absolute share on the International market, they are also targeting their marketing campaign, at the Chinese market the origin of traditional herbal medicine. [12]

The global and national market sale for herbal medicines is rapidly growing. According to the Secretariats of the Convention on Biological diversity (CBD) Report, there was US $ 60,000 million sales in the world herbal medicine market in 2000, in Japan herbal market was at US $ 6000 million in 1991, US $ 2000 million in 1994, US $ 2,200 million in 1996 and US $ 2400 million in 2000. In the United Kingdom herbal Market was at US $ 92 million in 1994, US $ 134 million in 1998, US $ 159 million in 2000 and it was expected to be at US $ 184 million in 2002. In United States herbal Market was at US $ 1600 million in 1994, US $ 3000 million in 1997, US $ 4,400 million in 1999 and US $ 5400 million in 2000. [13]

According to a survey report high increase in sales of the most popular products was witnessed in the USA. The sales of total herbal supplements (Echinacea, garlic, ginkgobiloba, Ginseng, St. Johns wort, & other herbs) was at US $ 292 million in 1997 and US $ 587 million in 1998. Percentage

increase of this sale was 10%. It shows rapid sales increase in herbal products. According to the report of the World Health Organization (WHO) the International market of herbal products is estimated to be US $ 60 billion, which is poised to grow to $5 trillion by the year 2050. [14]

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CHAPTER – 3

HERBAL MEDICINE INDUSTRY IN INDIA

HERBAL MEDICINE INDUSTRY IN INDIA

Plants have been used as healers and health rejuvenators since time immemorial. Even now they play an important role in the health of about 80 percent of world population. The rest 20 percent also depend substantially on plant based medicine. It is estimated that more than half of the drugs under clinical use at present owe their origin to plants. There has been an increase in the production of plant-based medicine, tonics and body care products in recent years [1]. According to World Health Organization (WHO) estimates the global trade in plant-based medicine and health products amounted to US $ 500 million in the year 1980. Subsequent survey by various agencies put the international market in natural product medicine as US $ 50 billion in 1993, with an annual increase potential of 30 percent. [2]

In India medicinal plants have a varietal emporium. India is one of the richest countries in the world as regards genetic resources of medicinal plants. It has about of 1500 species of flowering plants out of which about 17% are considered to be of medicinal value. [3]

The number of medicinal plants in India, both indigenous and introduced, has been variously being put at between "3000 and 3500". The Indian pharmacopoeia (1996) recognized eighty-five drug plants whose ingredients are used in various pharmaceutical preparations [4]. Species of Higher Plants has listed around 3000 plants [5][6]. Two thousand five hundred plants have been reported to be used in ethno-medicine. [7]

The ministry of Environment and Forest, Government of India, Launched an All India coordinated project on Ethno-biology in 1982. The temporary report has so far placed the number of plant species used as ethno-medicine at 7,500. The final report however, is still awaited and can be taken into account only when it comes out officially [8]. The number of plants listed in Ayurvedic Materiamedica has ranged from 260 in *Dhanvantaries Nighantu* to 560 in *Bhavprakash Nightanu*. [9]

The Ayurvedic Drug Formulary prepared by Department of Indian system of Medicine lists 387 plants [10]. The Unani System of medicine describes 440 plants [11], out of which 360 are common to other systems practiced in the country. Sixteen medicinal plants of exotic origin introduced in India from time to time are under cultivation and are now considered a part of the Indian medicinal plant resources. Notable among these are Senna, Psyllium, Belladonna, Cinchona, Eucalypt plus, Ipecac, Digitelis and Medica. Dioscorea. The number of plants having confirmed therapeutic properties or yielding a clinically useful chemical compound thus lies around 700 species. Out of these the plants providing largely and/ or regularly used raw materials by Indian Drug and Pharmaceutical Industry restricts to 335. This figure includes the raw material imported from other countries, some of which such as liquorices, henbane, cassia bark, galangal, aphendra, long pepper, and star anise are used in appreciably large quantities. The occurrence of these medicinal plants and available raw material derived from them is as follows.

Plants Growing as Weed

About 95% of medicinal plants used by the industries are collected from the wild [12] plants growing as weed or have run wild (Table No.1): Fifty four species of plants in this category provide the raw materials. Some of these as Adhotoda Zeyllanthus amours, Boerhavia diffusa, convolvulus micro phyllus, Gymnema sylvestre and various species of Datura have large demand; these plants usually occur in fallow agricultural land along roads and railway tracts in garden and orchards, on dust and organic dumps, ponds, marshes and other waste places. Some of these are escapes from cultivation or colonizers of secondary scrub springing up in cleared or degraded forestlands.

The weeds are prone to decline in growth and spread due to a change in the site conditions or through competition from an aggressive intruder. Some of these are very selective on habitat and tend to disappear with a slight change in the edaphically hydrological and other site conditions. The

raw materials originating from this group of plants also show a great variation in active chemical constituent and therapeutic efficacy.

Plants Cultivated as Ornamental or as Cereal, Fruit, Vegetable, Spice, Oil Seed, Essential Oil or other Cash Crop

Sixty-eight plants in this category are also the source of medicinal raw materials (Tables 2 & 3). The raw material in these cases is either the product for which the plant is being cultivated such as dove, cinnamon, castor seed, turmeric or cumin or a by-product such as Bael fruit, Abhotia bark, Jamun seed & pepain etc.

Plants Cultivated as a Medicinal Crop

Thirty or so medicinal plants are under regular and / or large-scale cultivation (Table 4). The major among these are plantago ovata (psillium), cassia angustifolia (Senna), Withanea somnifera (Ashwagandha), saussurea castus (Kuth) and a number of cinchona sps. Farmers cultivate majority of the plants in this category as small holding and the production depends on demand and good monetary returns. Work domestication and cultivation of about 50 medicinal plants has been going on at various government, non-government and academic agencies but only a few have been put to cultivation and that also on the small scale only. This is in spite of the claims made with regards to success achieved in their cultivation at various quarters. Examples of podophylum hexandrum, picrohiza kurroa, aconitum, hetrerophyllum, pterocarpus marsopium and manna yielding bamboo can be mentioned in this regard.

Selected Medical Plants Profile most used Today

Here are given selected Medicinal plants' profile, which are common items of medicinal use, have greater demand by the value, Quantity-wise and mentioned by Manufacturing Units. (Tables 5 & 6), [13, 14 &15]

01 Aconitum heterophyllum wallich ex royla

Common name: *Atvisha/Atish/Patish*

Parts used: Roots of white, yellow, red and black varieties but white is the best.

Source of supply: Cultivated and Forests

Area of occurrence: Common in temperate to alpine zones of the Himalayas *from Indus to Kumaon occurring at altitudes between 3000-5000 m*

Substitution/ Adulteration: Its root is like a root of Asparagus sarmentosus and Aconitum napellus. The roots of Chaerophyllum villosum have also been found as adulterants in the material sold as *Atish.*

Chemical analysis: The alkaloids isolated from the roots include atisine, heteratisine, histisine heteaophyllisine, hetrophylline, hetrophyllidine, atidine, hetidine, benzotheratisine, F-dihydro-astisine, hetisinone and hetidine. It also contains aconitic acid, tannic acid, pectin and starch.

Action & uses: It is Antipyretic, anthelminetic, aphrodisiac appetizer, astringent and carminative. Roots used for hysteria, throat infection, dyspepsia, vomiting, abdominal pain and diabetes, diarrhea, indigestion, coughs and troubles during dentition in children.

Compound Preparation: *Balachaturbhadra, Ativishadi Churna & Majun jograj gugul.*

02 Aloe barbadensis mill.

Common name: *Ghrit Kumari/ Ghekwar/ Elwa*

Parts used: Fleshy leaf, leaf juice, dried juice of leaf.

Source of supply: Cultivated and Forest

Area of occurrence: Many varieties are found is semi-wild state in all parts of India.

Substitution/ Adulterants: Marketed drug may be adulterated with black catechu (Acacia catechu wild) Piece of irons & stones.

Chemical analysis: Pulp has been reported to contain a glueoside, bardaloin, also B-bardaloin and aloe-emodin, oleorasin A & C.

Action & uses: Anathematic, bitter, aphrodisiac, cooling emmenagogue, *lapatic Stimulant, purgative, vermifuge and laxative. Bardaloin inhibits the* growth of myco-bacterium tuberculosis.

It is used in dyspepsia, amenorrhoea, burns, colic, hyperadenosis, lepatopathy, spleenopathy, skin diseases, constipation, dyrinmenarrahoea, abdominal tumors, dropsy, carbuncles, sciatica, lumbago, flatulence, dermatitis, cutaneous leishmaniasis, liver and spleen ailments, eye diseases, uterine complaints and piles.

Compound preparations: *Kumariasav, Lohaasav, Kumari Taila, Habbe Tinkur, Habbe ayarij & Habbe mudir.*

03 Asparagus racemosus wild.

Common name: *Satavari/ Satawar*

Parts used: Root, leaves & whole plant.

Source of supply: Cultivation and Forests.

Area of occurrence: It is occurred throughout tropical, subtropical part of India and ascending in Himalayas up to 1500 m altitude.

Chemical analysis: Leaf contain querectin-3 glucoromide, diosgenin, sito-sterol, stigmasterol, sarsapogin, sito-sterol D-glucoside, stigmasteral – B – D – glucoside, two spirostanolic and two furostandic Saponins in root.

Sarsapogenin, saponins A4 – A7, ghycosides of quercatin, rutin, hyperoside in flower & fruit.

Action and uses: Roots are demulcent, aphrodisiac, emollient, nervine tonic, anodyne, carminative, appetizer, stomachic tonic, diuretic, galactagogue, in impotency, azoospermea. Powder of root (boiled with milk) used for night blindness. Antiseptic, antispasmodic, nutritive, refrigernat and tonic, cardiac abnormality.

Used in nervous, hypertension, general debility, diarrhea, blood dsenentery, epilepsy, hemophilic disorders and swellings, tumors in inflammation, burning sensation, hyperdipsia, nephropathy, tuberculosis, cough bronchitis, colic, haemoreahoids, and leprosy.

Compound preparation: *Satavarikalpa, phalaghrita, narayana fasla, satavaryadi ghrita, satavarimodaka, shatamoolydilauha, satavaripanaka, Sufufe Salab & Sufufe Sailanur reham.*

04 Azadirachta indica A. Juss.

Common name: *Neem/ Nimba*

Parts used: Bark, root-bark, young fruit, seed, leaf, gum, oil.

Source of supply: Cultivated and Forests.

Area of occurrence: Throughout India, in deciduous forest, also widely cultivated.

Chemical analysis: Nimbidin, Nimbin, nimbinine, nimbosterol and more unidentified steroids have been isolated. Teranortriter periods like nimbin, salavin, nimbolide, azadirone are found to be present along with some polyphenolic compounds.

Action & uses: Anthelminitic, antiseptic, bitter, deoderant, diuretic, emmenagogue febrifuge, carminative, emollient, Purgative and tonic, astrigent, depuratine, liver tonic, antiperiodic acrid, appetizer.

Used in leprosy, piles, intestinal worms and uninary diseases, diabetes, skin diseases, wounds, ulcers, rheumatism, jaundice, blood disease, and as antibacterial. Nimbidin is effective in acute and chronic inflammation, psoriasis; it is analgesic, anti-pyretic and hypoglycaemic.

Compound preparation: *Shankhapushpi taila, jwarasamhara rasa, Nimbaharidra khanda, Nimbarishta, Nimbadi churna, Panchaguna taila, Habbe bawasir & Majune mussakkin reham.*

05 Bacopa monnieri (L.) Penn. / Hydrocotyle asiatica

Common name: *Brahmi*

Parts used: Whole plant

Source of supply: Cultivated and Forests

Area of occurrence: Quite frequent throughout India ascending to 1600m. It is find Punjab to Ceylon and in all worm part of the country. Reported to be threatened in North Eastern region of India.

Substitute/ Adulterant: It is often substituted and confused with centalla asiatica as both have vernacular name Brahmi.

Chemical analysis: It contains alkaloids brahmine and herpestine and a saponin, nicototine, luteolin and its glucosides, barosides A & B bacogenins, stigmasterd, stigmaotanol B-sitosterol and monnierini.

Action and uses: Astringent, cardio tonic, diuretic, sedative, and nervine tonic. Used for asthma, restoring loss of memory, enhancing power of speech.

Compound preparations: *Brahmi ghrita, Brahmi taila, Brahmi rasayana, saraswaterishta, Ashtamangala ghrita, mahaparnhachika ghrita.*

06 *Bambusa bamboos Druce*

Common name: *Vansalochan / Tabsheer*

Parts used: Leaf, Root, Stem, Seed

Source of supply: Wild / Forests.

Area of occurrence: Wild throughout the greater part of the country, especially in the hill forests of western and southern India.

Chemical analysis: The young shoot contains hydrocyanic acid and free benzoic acid. Fully grown green bamboos do not contain these principal.

Action & uses Curious concretions of silica are found in the hallow of the culums; this is known as *tabashis* and is widely used in indigenous medicine as a cooling, tonic, stimulant and as an astringent. The leaves are considered as emmenagogue.

Used in paralytic complaints, asthma, cough, debilitating diseases, piles, leprosy, jaundice, tuberculosis, lemodenma and biliousness.

Compound preparations: *Qirse Tabshir, Sufufe Gileo & Habbe Ghafis.*

07 Commiphora wihgtii [Arn.] Bhandari

Common name: *Guggul*

Parts used: Root, leaf, stem, gum resin

Source of supply: Cultivated and Forests.

Area of occurrence: Wild in semiarid zones, most dry parts of the country specially in Kutch and Rajasthan, Andhra Pradesh, Karnataka in Kerala and Tamil Nadu.

Substitute/ Adulterants: Thegum resin of Boswellia serrata Roxb. S.N. Sallaki is used as a subtitute for Guggul.

Chemical analysis: Gum resins from stem, Linnobic, palmitic and stearic acids have been isolated.

Action and uses: The gum resin which exudates from the stem constituted the drug Guggul. Used in many important Ayurvedic preparation. It is analgesic, antiphlogiritic, antiseptic, antispasmodic, aphrodisiac, astringent, cardio tonic, emmanagogue, laxative, stimulant, stomachic and tonic, Anti-inflammatory, hypocholesteromic activity in the drug has been found. Used exclusively in traditional medicine for arthritis, diabetes and obesity.

Compound preparation: *Yogaraja guggulu, kaishaore guggulu, Chandraprabha vati churna, Habbe muqil, Itrifil muqil & Majune jograj gugul.*

08 Emblica officinalis Gaertn.

Common name: *Amla*

Parts used: Fruit / seed

Source of supply: Cultivated and Forests

Area of occurrence: Plant occurs throughout tropical and subtropical India up to 1500 m

Chemical analysis: Fruits, ieaves and bark are rich in tannin. Root contains ellagic acid and lupeol. Seeds contain fixed oil, phosphatides and an essential oil. Phyllembin and an ant microbial substance have been isolated.

Action and uses: It is aperients, aphrodisiac and digestive, diuretic, laxative and it is a rich source of Vitamin C.

It is useful in anemia, diarrhea, dysentery, diabetes dyspepsia, hemorrhage, and inflammation of the eyes, jaundice leucorrhoea, blackening of hair. Fruit is expectorant and has anti-cancerous properties.

Compound preparation: *Chyavanprasha, Dhatrilauha, Amalki Rasayana, Jawarish Amla, Anushdaaru & Demagheen*

09 Ocimum sanctum Linn.

Common name: *Tulsi*

Parts used: Leaf, seed, and root

Source of supply: Cultivated and Forests

Area of occurrence: The plant is found throughout India.

Chemical analysis: Yield essential oil containing eugenol, carvacral, methyl eugenol and caryphyllene. Leaves contain ascorbic acid and Carlene.

Action and uses: Oil from leaves is anti-bacterial and has insecticide properties, Antipyretic, aromatic, cardio tonic, carminative, diaphoretic and expectorant. Used in cough, hiccough, respiratory disorder and leprosy.

Compound preparations: *Dasmula ghrita, Muktadi Mahanjana, Abhaxaka Bhasma.*

10 Piper cubeea Linn. F.

Common name: Kababchini

Parts used: Fruit (dried unripe berries)

Source of supply: Wild / Forests

Area of occurrence: Cultivated to a limited extent in South India.

Substitute/ Adulterants: Black pepper is used as an adulterant.

Chemical analysis: It contains volatile oil, oleoresin cubebin, cubebic acid, and fatty matters.

Action and uses: Appetizer, aromatic, cardiotonic, carminative, emmenagogue, diuretic and urinogenital antiseptic, anthelmintic and expectorant. Used in cardiac weakness, constipation, cough, cystitis,

gonorrhea, piles, respiratory disorders lack of appetite, asthma, rheumatism, cephalolgia.

Compound preparation: *Sufufe Shora murakkab & Jawarish Zarouni.*

11 Saraca asoca roxb. DC. Wild.

Common name: *Ashoka*

Parts used: Leaf, flower, seed, bark

Source of supply: Cultivated and Forests

Area of occurrence: Throughout India

Chemical analysis: The flowers contain fatty acids and gallic acid, apigenin – 7-0 B-D- glucoside etc. bark yields alkones, esters and primary alcohols..

Action and uses: The bark is bitter, astringent, sweet, refrigerant, anthelmintic, styptic, stomachic, febrifuge, demulcent.

It is useful in dyspepsia, fever colic, ulcers, menorrhegia, leucorrhoea and pimples. The dried flowers are used in diabetes and hemorrhagic dysentery and seeds are used for treating bone fractures. The flowers are considered to be an uterine tonic.

Compound preparation: *Ashokarishta, Ashokaghrita.*

12 Sida cordifolia Linn.

Common name: *Kanghi / Bala*

Parts used: Root, seed, leaf (whole plant)

Source of supply: Cultivated and Forests

Area of occurrence: Throughout tropical and sub-tropical parts of India.

Chemical analysis: Sida contains an alkaloid, a fatty oil, phytosterol mucin, resin, etc. The main portion of the alkaloid is ephedrine.

Action and uses: It is reputed for its tonic and aphrodisiac, febrifuge.

The plant parts are used for the fever, fits leucorrhoea, gonorrhea, and colic, nervous disorders, general debility and heart irregularity, rheumatism, spondylitis, ophthalmia and improves strength.

Compound preparation: *Sufufe Sailanurreham*

13 Swertia chirayita (roxb. ex. flem) Karst.

Common name: *Chirayata*

Parts used: Whole plant

Source of supply: Cultivated and Forest

Area of occurrence: The plant grows wild in the upper Himalayas from Kashmir to Bhutan, between 1200-3000 m.

Chemical analysis: Aphetic acid (yellowish and bitter) two bitter, glucosides – chiratin and amarogentin, gentiopicrin, two yellow crystalline phenols and a new xanthone, swerchirin have been isolated from the plants.

Action and uses: Anthelminetic, anti-diarrheal, biliary tonic, bitter carminative, expectorant, febrifuge, laxative, stoma tic, tonic.

It is special remedy for bronchial asthma, liver disorders; beneficial in cough, dropsy, sciatica and skin diseases.

Compound preparations: *Kartiadi kuatha, sudarshan churna*

14 Tinospora cardifolia (wild.) Miers.

Common name: *Giloe, Gudchi*

Parts used: Whole plant

Source of supply: Cultivated and Forests

Chemical analysis: Tinosporin and a furanoid diterpene identical with columbin have been isolated from the plant. Berberine and a waxy substance are also present. A new hypoglycaemic agent has been isolated.

Action and uses: It is an alterative, anthelminetic, anti-arthritic, antiperiodic, antipyretic, bitter tonic, alphodisiac, blood purifier, carminative, digestive, expectorant, Anti-diabetic.

Stem is used in chronic diarrhea and dysentery. It is used in anemia, fever, gonorrhea, jaundice, leprosy, piles, rheumatism, vomiting, cardiac debility, uropathy and spleenopathy.

Compound preparations: *Amreat asishta, Sufufe Gileo.*

15 Withania somnifera (L.) Dunal.

Common name: *Asvagandha / Asgand*

Parts used: Root, leaf

Source of supply: Cultivated and Forests

Area of occurrence: Throughout the drier part of India

Chemical analysis: It contains an essential oil, ipuranal, a crystalline alcohol, wittaniol, hentriacontane, phytosterol and fatty oil. It also contains alkaloids withanine and somniferene.

Action and uses: The tuberous roots are astringent, bitter, somniferous, thermogenic, stimulant, aphrodisiac, tonic and sedative.

They are useful in leucoderma, constipation, insomnia, tissue – building and nervous breakdown, dropsy, leucoderma, rheumatism and cough.

Compound preparation: *Ashwagandhadi churna, Ashwagandha rasayana, Ashwagandha ghrit, Majune salab, habbe asgandhm & Majune muqavie reham.*

Domestic Utilization of Herbal Medicine

India has a well-established and fast growing drug and pharmaceutical industry utilizing plant based raw materials. There are around 7000 big and small pharmacies manufacturing medicine and over the counter (OTC) products like digestives and laxatives, cosmetics, hair oils, aphrodisiacs and other tonics based on Ayurvdic, Unani and Siddha systems of Medicine. The annual value of these products at present is variously estimated at between Rs. 4000 to 4,500 crores [16]. A number of drug and pharmaceutical firms, which include many multinationals, are engaged in the production of phyto pharmaceutical which consist of various important and largely used alkaloids, glycosides and other physiologically active organic compounds. India exported about 1400 tones of these products during the year 2000-2001. [17]

Other big consumers of herbal raw materials are the products of plant extracts. Currently, emphasis is being laid on using standardised ones in extracts in place of raw plant materials. These extracts are used for separation of therapeutically active chemical or in the preparation of health promoting articles. This has created a new sector in the pharmaceutical industry known as phyto extraction industry. There are more than 50 big or small units in India producing extracts of a large number of medicinal plant raw materials. [18]

Allopathic and homeopathic systems use extracts, tinctures or therapeutically active chemical compounds isolated from herbal raw materials or synthesized from the precursors. Large scale commercial production of drugs, OTC, and other products based on traditional systems and substantial increase in the production of phyto-pharmaceutical for use in western medicine has changed the pattern of consumption of herbal raw materials by the industry.

Domestic Demand of Herbal Medicine

No reliable data is available regarding annual demands of the raw materials & compound medicine by the Indian drug and pharmaceutical industry, because the herbal market in the country as on today is unorganized.

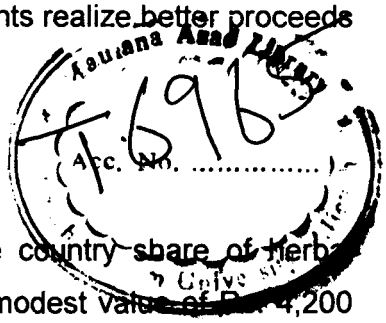
There is a vast, secretive and largely unregulated trade in herbal raw materials, mainly from the wild, which continues to grow dramatically in the absence of serious policy attention. In materials where the origin of a particular drug is assigned to more than one plant, due to which adulteration is common in such cases, this affects the market both directly and indirectly. This makes the estimation of demand a difficult task. Such information emanating from various sources differs widely from each other.

Basic Chemicals, Pharmaceuticals & Cosmetics Export Promotion Council (CHEMEXIL) has estimated that annual demand of raw materials from 55 species is at around 32,000 MT [19]. Ayurvedic Drug Manufacturers Association puts such demand at 30,000 MT from 110 species of plants [20]. Presumption based on data collected form a large number of sources, indicates that the present requirement of the raw materials lies between 150,000 and 2,00,000 MT per annum.

According to CRPA report about the top 20 medicinal plants' estimated domestic demand for select medicinal plant, it accounts for 66.2 percent of the total demand for 162 medicinal plants. In terms of value this comes to 73.1 percent of total value. Future projection of demand of 162 medicinal plants is expected to increase from 120817 tonnes in 1999-2000 to 160542 tonnes in 2001-2002 and is expected to further increase to 272618 tonnes in 2004-2005. [13]

It is evident from the projections made on the demand aspect of a few of the medicinal plants (Table-7) that this sector offers a lot of opportunities. Fluctuation in demand and supply are characteristic of this sector owing mainly to the un-organized nature of trade but the wide variation in domestic

and international prices (Table 8) is a cause of concern. Supply of crude drugs and lack of value addition could be a few of the reasons for these fluctuations, but the certification of the product could be an alternative, which could help the Indian stake holders of medicinal plants realize better proceeds from their cultivation and trade.



Indian System of Medicine & Industry

An ISM & H Report shows that within the country share of Herb (Indian System of Medicine) products is only at a modest value of Rs. 4,200 crores. Ayurvedic drugs & formulations account for over 80% of the product. Unani accounts for about 3% of the product and Homeopathy accounts for over 14% of the total product [21]. The above figure shows that the demand of Ayurvedic products within the country is very high.

According to the Dabur Executive Report, "Dabur established its market leadership status with a turnover of Rs. 1000 Crores. From a small beginning and upholding the values of its founder, Dabur now enters the august league of large corporate business". [22]

A PTI report said that Ranbaxy is getting into herbal drugs, it will give competition to Dabur with 60% market share, a couple of herbal drugs will be marketed shortly. In 1998 the sales was US $15 Million and goes up to US $ 296 million in 2002. In the US alone targeted sales within that country was around US $ 400 million in 2003. [23]

A survey of the current status of ISM & H industry under taken by the department of ISM & H showed that there were in all 8343 manufacturing units which had been catalogued and Ayurveda industry was dominated after that Homeopathy and Unani Industries engaged in production of Herbal Medicine. The share is respectively 85%, 7% & 3%. [24]

Research & Development of Herbal Medicine

There are large numbers of ISM & H pharmacies in the country and many of them especially smaller ones do not adopt good manufacturing practices.

A CRPA study report shows that majority of R & D activities are engaged in Ayurveda (70.5%) followed by Unani (26.9%) and Homeopathy (0.5%) [25].

Ensuring quality control is still a major problem because of lack of adequate number of ISM & H testing laboratories. Setting up pharmacopeial standards and strengthening of drug control laboratories should be identified on priority basis. For better quality control, government should take action and drug inspection staff must be appointed.

Research should be concentrated on areas where ISM & H has unique advantages such as prevention and management of life style related diseases and diseases for which drugs are not available in the modern system.

Export & Import

Export of Herbal Medicine

Apart from meeting requirements of Herbal Medicine for domestic consumptions, India exports crude drugs mainly to developed countries, viz. Germany, France, Switzerland, UK, and Japan, who contribute between 75 to 80 percent of the total export of crude drug from India. The principal herbal drugs that have been finding a good market in foreign countries are Aconite, Alo, Belladona, Acorus, Cinchona, cassia tora, Dioscorea, Digitalis, Ephedrine, Plantago (isabgol), cassia (senna) etc. [26]

According to CRPA Report, Export of Medicinal plants after having reached to a maximum of 237.8 crores in 1998-99 have declined to 176.5 crores in 1999-2000. The average annual growth rate for exports between 1996-97 and 2000-01 is estimated at about 8.7 percent. At this rate requirements of medicinal plants for exports will be about 56500 tones per

annum by 2004-2005 as compared to about 40000 tones estimated for 2000-01. If this demand gets accelerated and follows the trend, the overall demand for medicinal plants for exports may touch about 80000 tones per annum by 2004-05. [27]

Two systems of herbal medicine__ Ayurveda and Unani, have been identified as fastest growing with exports pegged at Rs. 220 crores in 2000-2001. The market has spread to almost 127 countries and reports of the Mumbai based Chemexcil (Basic Chemical, Pharmaceutical & Cosmetic Export Promotion Council) indicate a quantum leap in export in the last few years. According to the data given by the Chemexil, growth of Ayurveda & Unani export to four major countries is the following:

To Russia touched Rs. 27 crores in 2001 up by 62% from the previous year, value of export to the US and Germany was Rs. 22 crores each, Australia Rs. 9 crores and Switzerland Rs. 6.5 crores in 2001. [28] Even Asian countries like Hong Kong and China have a sizable market. The figures however do not show India's full potential in the sector.

According to the Hindu Business Line (a financial daily), the global trade in medicinal plants is estimated at $ 800 million a year, of which China exports about 121,000 tonnes and India can became a Rs. 4000-crore supplier of herbal products in the global market in the next five years. [29]

The total value of Export of crude drugs, Ayurvedic put up for retail & Ayurvedic not put up for retail have increased from 37.74 US $ million in 1999-2000 to 158.71 US $ million in 2002-2003 as shown in the Table 9.

Import of Herbal Medicine

Around 40 raw materials are imported regularly and in substantially large quantities from other counties. Some of these such as liquorices, asfotida and a number of other materials have also been imported.

In Unani, drug formulation meets the entire consumption requirements of the industry while others such as ephedrine, long pepper, juniper berry,

cassia bark, galangal, etc. are imported to supplement the supplies coming from within the country. [30]

The import of crude drugs, Ayurvedic not put up for retail & Ayurvedic put up for retail are nominal at US $ 20.52 million in 1999-2000 which goes up to US $ 42.14 million in 2002-2003.This figure shows a nominal growth of import of herbal medicine as shown in Table 10.

Considering the import figures of some herbal medicines and the increasing value of their imports does not pose a threat to us, keeping in mind the quantum of our exports.

Due to the changes in the patent regime in 2005, the pharmaceutical companies are shifting prescribed drugs to OTC drug category. Internationally it is a proven concept that people go from prescribed drugs to OTC because the cost of medicine goes down and the convenience factor increases. After the patenting regime in 2005 many Indian pharmaceutical companies will have a competitive advantage of not being copied the patented drugs cheaply. So currently there are only two ways to achieve growth i.e. by promoting OTC products and promoting the retail selling.

C.K. Kumaravelu Says, "The herbal or natural products market in India is evolving rapidly" He also adds that the herbal market is Free from multinational competition, they appeal to marketers and to the consumers. The attraction is in the fact that the products are free from synthetic ingredients, which is a selling point for herbal market. [31]

This has lead to increased use and large scale acceptability of traditional herbal medicines and suggests the manufacturers and the retailers to emphasize this well accepted feature of herbal medicine in the promotion of their products.

Table 1: Medicinal Plants Growing as Weed or under run Wild Conditions in Secondary Forest scrub, Fallow Agricultural Land, Orchards, Organic Dumps, Along Rail Track or Roads, in and Around Stagnant Water Bodies and other Waste Places

Plant	Part Used	Main areas of Natural Occurrence	Resources	Demand
1	2	3	4	5
Abutilon indicum	WH, SD	Throughout Indian plains	Good	Med
Acalypha indica	WP	Throughout Indian plains	Good	Mar
Achyranthus aspera	WP	Throughout Indian plains	Good	Low
Adhatoda vasica	LF	Throughout India up to 1000 m	Good	High
Andrographis paniculata	HB	UP, Bihar, W. Bengal, Gangetic plains	Fair [VU][*]	High
Baliospermum montanum	RT	Throughout India ascending to 1000m	Fair	Low
Blumea balsamifera	HB	Sikkim, N. Bengal, Arunachal, Methalya	Good	Low
Boerhavia diffusa	RT	Throughout India, ascending to 1000m	Good	High
Calotropis gigantean	RTBK	West Rajasthan, Gujarat & South India	Poor	Mar
Cannabis sativa	LS	Throughout India, up to 3000 m	Good	Low
Cassia absus	SD	HP & UA, foothills up to 1000 m	Fair	Med
Cassia occidentalis	SD	Throughout India up to 1200m	Good	Med
Cassia tora Centratherum	SD	Throughout India up to 1200m	Good	Med
Antherlminticum	SD	Throughout India up to 1000m	Good	High
Coccinia grandis Convolvulus	FR	Throughout India ascending to 1000m	Good	Mar
Microphyllus	HB	North, West & Central Indian plains	Good	High
Curculigo orchioides	RT	Throughout India, under mango groves	Fair [VU]	High
Cyperus rotundus	Tuber	Throughout India up to 1200m	Good	High

Cyperus scariosus	RT	UP, Bihar, W.Bengal, Gangetic plains	Good	Med
Datura metel	LS/SD	Throughout India ascending to 800 m	Fair	Med
Datura stramonium	LS/SD	W. Himalayas, Southern hills up to 1500m	Good	Med
Eclipta prostrata	WP	Throughout India, moist & marshy loc.	Good	High
Gymnema sylvestre	RT/LS	Andhra, T.N., & Kerala up to 1000 m	Fair	Med
Hygrophila auriculata	HB/SD	North, West & Central India, plains	Good	Med
Hyoscyamus niger	LS/SD	J & K, HP, 3000 to 4000 m	Poor	Low
Lactuca serriola	LS/SD	J & K, Himachal, 1000 to 3000m	Good	Med
Lepidium sativum	SD	Throughout India, often cultivated	Good	Low
Leucas cephalotus	HB	Throughout Indian plains	Fair	Low
Luffa echinata	HB, FR	Central & Peninsular India, arid plains	Poor	Med
Mimosa pudica	SD	Northern & Central Himalayan foothills	Fair	Mar
Nelumbo nucifera	SD	Throughout India in lakes & ponds	Good	Low
Nepeta hindostana	WP	J & K, HP, UA, sub-hills	Fair	Low
Nymphaea stellata	FL	Throughout India except arid regions	Poor [VU]	Med
Ocimum basilicum	HB	*Throughout India up to 1200m*	*Fair*	*Med*
Ocimum canum	SD	Throughout India, arid plains	Good	High
Operculina turpethum	RT	Throughout India, arid plains	Fair [*]	High
Pedalium murex	FR	TN, Andhra, Karnataka & Kerala	Fair	Med
Peganum hermala	SD	Rajasthan, J & K 1500 to 4000 m, arid hills	Fair	Low
Phyllanthus amarus	HB	Peninsular & South India, plains	Good	High
Physochalaina praealta	LS	Laddakh and Lahore, 3500 to 4000 m	Poor [VU]	Low
Prunella vulgaris	WP	J & K, 1200 to 2000 m	Fair	High

Psoralea crylifolia	SD	UP, Bihar, Jharkhand, Chattisgarh plains	Fair [*]	High
Silybum marianum	SD	Himalayan foothills, J & K to UA	Fair	Med
Sida cordifolia	SD	Throughout North & West Indian Plains	Good	Med
Sida rhombifolia	SD	Throughout India up to 1000 m	Good	Med
Sisymbrium irio	WP	Throughout North India up to 1500 m	Good	Low
Solanum nigrum	WP	Throughout Indian plains	Good	High
Solanum surattense	WP, RT	Throughout Indian plains	Good	High
Sphaeranthus indieus	FL	UP, Bihar, MP & Chhattisgarh, plains	Fair	Low
Tephrosia purpurea	WP	Northern & Western plains	Good	Low
Tribulus terrestris	FR, RT	Throughout India ascending to 1000 m	Good	High
Uraria picta / lagopoides	RT	UP, Bihar, Gangetic plains / South India	Good	Med
Vernonia cenerea	WP	Throughout India up to 600 m	Good	Med

Notes: (1) **Abbreviations and legend to Table 1-4 ; Vegetative Parts Used:** RT-root; RTBK-root bark; ST-stem; STBK-stem bark; LF-leaf; FL-flower; FR-fruit; SD-seed; GM-gum, oleoresin; WP-whole plant; HB-herb(aerial part).
Resources: Good-No decline foreseen; Fair-May decline if there is increase in current rate of collection; Poor-already declining; V.Poor-Declining Sharply &nearly exhaust shortly; Rare- Almost exhausted in the wild; [*]-declined in the wild but progressively cultivated. **Threat categories (IUCN):** CR-Critically endangered; EN- endangered; VU-vulnerable. **DEMAND** (in drug & pharmaceutical & Export Industries): Mar (marginal)- less than 100 mt per anum (p.a); Low- between 100-500mt p.a; Med(medium)- 500-2500mt p.a; High- 2500-5000mt p.a; V.High(Very High) –above 5000mt p.a.

(2) Plants considered controversial source of certain raw materials, as Ashtavarga, Nakuli, etc., have not been included in the above list.

Table 2: **Plants Cultivated as Avenues Trees, Embankment Stabilizers, Hedges or Ornamentals in Parks and Gardens and Yielding Herbal Raw Materials**

Plant	Part	Areas Where Cultivated	Demand
Acacia nilotica	STBK / GM	North, West & Central India on embankments	High
Aegle marmelos	RT / FR	Throughout India, around temples & villages	High
Albizia lebbek	STBK	Throughout India as avenue tree	Low
Alpina galanga	RH	S. & W. Bengal, as ornamental herb	High
Alstonia scholaris	STBK	Throughout India as avenue tree	Mar
Althea rosea	FL	Throughout India as flowering shrub in gardens	Med
Azadirachta indica	LS/, STBK/SD	Throughout, India as avenue tree	High
Cassia fistula	FR [pulp]	Throughout India as avenue tree	High
Catharanthus roseus	HB/RT	Throughout India as flowering herb	V. High
Clerodendrum multiflorum	RT	Throughout India as garden hedge	Med
Clitorea ternatea	FL / FR	Southern & eastern India as flowering shrub	Mar
Erythrina variegata	STBK	Throughout India as avenue tree	Med
Euphorba neriifolia	Latex	Rajasthan, as hedge around agricultural fields	Mar
Ficus racemosa	STBK	Throughout India, as avenue tree	Med
Ficus religeosa	RT	Throughout India around temples & avenues	Med
Gmelina erborea	RT	Throughout India as avenue tree	Med
Hibiscus rosa-sinesis	FL	Throughout India as flowering shrub	Low
Minusops elengi	FL/FR	Throughout as flowering tree in gardens	Med
Moriga oleifera Nyctanthes	FR / SD	Throughout India as avenue tree	Med

Arbor – tristis	LS, FL	Throughout India as flowering tree	Low
Ocimum sanctum	LS / SD	Throughout India up to 1000 m	High
Operculina turpethum	RT	Throughout as flowering climber in gardens	High
Plumbago indica	RTBK	Throughout as flowering shrub in gardens	High
Ruta graveolense	WP	Throughout India as flowering herb in gardens	Med
Saraca indica	STBK	TN, Karnataka & Kerala as flowering tree	High
Sophora japonica	FL	Ornamental shrub in Kashmir and Kullu	High
Syzygium cumini	SD	Throughout India as avenue tree	High
Tamarix gallica	Galls	Throughout India sea shores as land stabilizer	Med
Terminalia arjuna	LS, STBK.	Throughout India as avenue tree	High
Thespesia populnea	FL, FR	As flowering tree in Indian gardens	Low

Note: Abbreviations same as in Table 1

Table 3: Plants Grown as Agricultural, Horticultural or Industrial Crops and also Yielding Important Herbal Raw Materials

Plant	Crop	Medicinal Part	Demand
Allium sativum	Garlic (Lahsun)	Bulb/oil	V. High
Ammomum subulatum	Large cardamoms	Fruit, Seed	Med
Amorphophalus companulatus	Sooran	Corn	Mar
Anethum sowa	Indian Dill (sowa)	Seed, seed oil	V. High
Apium graveolense	Celery	Seed, seed oil	Med
Areca catechu	Beternut (supari)	Seed	Med
Camellia sinensis	Tea	Tea leaf and waste	V. High
Carica papaya	Papaya (papita)	Latex (pepain)	V. High
Cinnamomum verum	Cinnamon (Dalchini)	Stem bark	Med
Citrus medica var. acida	Lime (Kaghzi Nimboo)	Fruit juice	Med
Cocos nucifera	Coconut (Narial)	Kernel, Oil	High
Cariandrum sativum	Coriander (Dhania)	Fruit	Med
Crocus sativus	Saffron (Kesar)	Pistil	Mar
Cuminum cyminium	Cumin (zira)	Fruit	High
Curcuma longa	Turmeric (Haldi)	Root	High
Cydonia oblonga	Quince (Behi)	Seed	Mar
Cymbopogon citrates	Lemon grass	Essential oil	V. High
Dolichos uniflorus	Kulthi	Seed	Low
Elettaria cardamomum	Cardamom	Fruit, seed	High
Foeniculum vulgare	Fennel (Saunf)	Fruit	Med

Lawsonia inermis	Mehndi (Henna)	Leaf	High
Linum unsitatissimym	Alsi (Linseed)	Seed; oil	Med
Memordica charantia	Karela	Leaf, Seed	Low
Mentha arvensis var. piperascens	Japanses mint	Essential oil/mental	High
Mentha spicata	Spear mint	Essential oil	Med
Myristica fragrans	Jaiphal; javitri	Seed & Aril	Med
Nicotiana tabacum	Tobacco	Leaf waste	High
Nigella sativa	Kalaunji	Seed	Low
Papavar somniferum	Opium poppy	Opium	V. High
Piper nigrum	Black pepper	Fruit	V. High
Prunus amygdalus	Badam (Almond)	Kernel / Oil	Med
Ricinus communis	Eranda (castor)	Root / oil	High
Rosa damascena	Rose (Gulab)	Flower / oil	High
Sesamum indicum	Sesamum (Til)	Seed / Oil	High
Syzygium aromaticum	Cloves (Lavanga)	Flower bud	High
Trachyspermum ammi	Ajawain	Seed	High
Trichosanthes diocia	Patal, parval	Leaf / Fruit	Low
Trigonella foenum-graceum	Fenugreek (Methi)	Seed	Low
Vitis vinifera	Grape, Munnaka	Dry fruit	High
Zingiber officinalis	Ginger (Sonth)	Rhizome	V. High

Note: Abbreviations same as in Table 1&2

Table 4: Plants Cultivated Exclusively as Medicinal Crop

Plant	Part Used	Area Where Cultivated	Demand
Acrous calamus	RH	Karnataka *	High
Alpinia galanga	RH	Assam, W. Bengal, Karnataka and Kerala*	Med
Aloe vera	LF (juice)	Coastal areas of Saurashta (Gujarat)	V. High
Ammi majus	FR	Jammu, Punjab and Western UP *	Med
Andrographis paniculate	WP	UP, Bihar, WB, MP and Maharashtra *	High
Asparagus racemosus	RT	Neemuch (MP), Bundelkhand (UP)*	High
Atropa belladonna	RT/LF	Tangmarg & Kashmir Vallery (J & K)	Low
Carum carvi	FR	Lahaul and Kinnaur (HP), Kumaon (UA)*	High
Cassia angustifolia	LF; FR	Tirunelvelli, Ramnathpuran Distt. (TN)	High
Catharanthus roseus	RT; HB	Peninsular and southern coastal region *	V. High
Cephaelis ipecacuanha	RT	Mungpo (WB)	Med
Chlorophytum borivilianum	RTS	Udaipur, Sikar (Rajasthan), jalgaon (Maharashtra)*	High
Claviceps purpurea	Sclerotia	Nilgiri Hill, Bangalore and Jammu	High
Cinchona sps.	STBK.	Nungpo (W.Bengal), Nilgiri Hills (TN)	High
Digitals lanata	LF	Nilgiri & pulney hills (TN), Bangalore	Low
Dioscorea floribunda	RH	Goa, Bangalore, Nungpo, (WB) and Tripure	High
Emblica officinalis	FR	Bundelkhand & Eastern UP, Nimar (MP) and Bihar	V.High
Eucalyptus globules	LF.OIL	Nilgiri hills (TN)	High
Glorisa superba	RT/SD	Tiruchirapalli (TN)	Med
Inula racemosa	RT	Lahaul (HP)*	Low

Kaempferia galangal	RH	Karnataka TN and Kerala*	Low
Matricaria chamomoilla	FL	Kullu (HP)*	Low
Papavar somniferum	Latex	Ghazipur (UP), Mandsaur (MP)	V. High
Pimpinella anisum	FR	Haryana, UP and Punjab*	High
Piper longum	FR/RT	Bihar, Guntur (AP), Tura and Shillong (Meghalaya)*	High
Plantago ovata	SD/Husk	Mehsana and Banaskantha (Gujarat)	V. High
Rauvolfia serpentina	RT	Hazaribagh (Jharkhand)	High
Saussurea costus	RT	Lahaul (HP)	High
Withania somnifera	RT	Manasa (MP)	High

*Small holding over scattered areas. Abbreviation same as in tables 1-3.

Table 5: Estimated Domestic Demand for Selected Top 20 Medicinal Plants Quantity-Wise

Botanical Name	Common Name	1999 – 2000	
		Quantity (tones)	Percent Share (%)
Embica of officinalis Gaetn.	Amala	15146.7	12.5
Asparagus racemosus Wild.	Shatawar / Watawar	8246.3	6.8
Withania sominifera Dunal.	Aswagandha / Asgandh	5905.1	4.9
Terminalia chebula Retz.	Harar / Halela Zard	5413.4	4.5
Saraca asoca [Roxb.]	Ashoka	5331.8	4.4
Aegle marmelos Corr.	[1] Bae [Bark] [2] Belgiri	4479.8	3.7
Cassia angustifilia Vahl.	Sonapatri / Sana	4356.2	3.6
Adhatoda vasica Nees	Adusa / Arusa	4211.9	3.5
Piper longum Linn.	Pippali, Filfildaraz	2951.8	2.4
Bacopa monnieri [linn.]	Brahmi	2650.1	2.2
Sida cordifolia Linn.	Kanghi	2677.8	2.2
Ocimum santum Linn.	Tulsi	2371.7	2.0
Bambusa bambos Druce.	Vansalochan / Tabasheer	2153.5	1.8
Boerhaavia diffusa Linn.	Punarnava	2182.3	1.8
Azadirachta indica A. Juss.	Neem	2039.3	1.7
Solanum nigrum Linn.	Mokoya / Inab – US – Salab [Mako]	2005.1	1.7
Weodforadia fruticosa Kurz.	Dhataki, Dhai	2014.3	1.7
Andrographis paniculata	Kalmegh	1886.2	1.6
Syzygium aromaticum	Long / lavang.	1967.8	1.6
Tinospora cordifolia [Wild]	Giloe, Guudchi	1897.3	1.6
Total		**79888.4**	**66.2**
Others		**40928.4**	**33.8**
Total		**120816.8**	**100.0**

Source: Demand study for selected Medicinal plants [2001] MH&FW, WHO, Volume I, CRPA, India.

Table 6: Estimated Domestic Demand for Selected Medicinal Plants by Value

Botanical Name	Common Name	1999 – 2000	
		Quantity (Rs. Lakhs)	Percent Share (%)
Bambusa bambos Druce.	Vansalochan / Tabasheer	6460.5	9.6
Embica officinlis Gaertn.	Amala	6058.7	9.0
Syzygium aromaticum	Long / lavang.	5903.4	8.8
Asparagus racemosus Wild.	Shatawar / Satawar	5772.4	8.6
Piper longum Linn.	Pippali, Filfildaraz	4427.7	6.6
Withnia sominfera Dunal.	Aswagandha / Asgandh	3543.1	5.3
Acontum heterophyllum	Ativisha / Atis	2505.1	3.7
Swertia chirata Buch. Ham.	Chirayata	2393.1	3.6
Cuminum cyminum Linn.	Zeera / Zeera Safaid	1652.0	2.5
Saraca asoca [Roxb.]	Ashoka	1599.5	2.4
Cassia angustifolia Vahl.	Sonapatri / Sana	1306.9	1.9
Commiphora wightii [Arn.]	Guggal	1059.2	1.6
Aegle marmelos Corr.	[1] Bael [Bark] [2] Belgiri	896.0	1.3
Anacyclus pyrethrum DC.	Aquarqarha	903.0	1.3
Gentiana kurroo Royle.	Kuru	554.7	1.3
Nardostachys jatamansi DC	Jatamansi / Sumbul ut Teeb	456.8	1.3
Bacopa mannieri [Linn.]	Brahmi	795.0	1.2
Piper cubeba Linn. F.	Kababchini	743.6	1.1
Aloe barbadensis Mill.	[1] Gheekwar [2] Elva Musabbar	650.8	1.0
Boerhaavia diffusa Linn.	Punarnava	654.7	1.0
Total		**49066.2**	**73.1**
Others		**17984.0**	**26.9**
Total		**67050.2**	**100.0**

Source: Demand study for selected Medicinal plants [2001] MH&FW, WHO, Volume I, CRPA, India.

Table 7: Demand Supply Gap (Supply Short of Demand) : 2001 – 2002 and 2004 – 2005 of Top 8 Medicinal Plants

Botanical Name	Common Name	Quantity (tones)	
		200 – 2002	2004 – 2005
Emblica officinalis	Aonla/ Amla	7582.8	26636.2
Asparagus racemosus	Shatawar	2678.4	8412.2
Withania somnifera	Ashwagandha	1123.6	3222.4
Ocimum sanctum	Tulsi	925.1	3038.4
Aloe barbadensis	Gheekwar	641.5	2684.5
Swertia chirata	Chiraita	167.5	487.0
Andrographis panciculata	Kalmegh	118.8	311.1
Rauvolfia serpentina	Sarpagandha	83.5	248.6

Source: Ministry of Health and Family Welfare (Anon., 2002)

Table 8: Market Trend in Domestic and International Prices (In Rupees)

Essential Oils (Rs / Kg)	June 1998	June 1999	September 2000	June 2001	March 2002
Basil Oil	4,685	4,685	3,930	4,204	4,204
Chamomile Oil	35,610	35,610	36,450	38,963	39,000 (18000)
Citronella Oil	490 (300)	490 (300)	480 (300)	411 (300)	353 (325)
Lemon Grass	930 (650)	955 (650)	610 (650)	1,016 (650)	1,060 (650)
Palmarosa	960 (450)	960 (450)	990 (450)	1,051 (450)	1,075 (560)
Mentha Oil	400 (375)	400 (375)	400 (360)	356 (350)	356 (350)
Tulsi Oil					2,100

Figures in brackets: Domestic Indian Prices

Source : International : New York Market Price, Chemical Marketing Reporter

Indian : CIMAP Records, Chemical Weekly.

Table 9: Export of Herbal Medicines

Item	Ayurvedic & Unani Herbs			Ayurvedic & Unani Medicines (Bulk)			Ayurvedic & Unani Medicines (Branded)			Total (2 + 3 +4)			Total India's Exports	% Growth
HS Code (1)	12119026 (2)			30039001 (3)			30049001 (4)			(5)			(6)	(7)
Year	Export	% Share	% Growth	Export	% Share	% Growth	Export	% Share	% Growth	Export	% Share	% Growth	Export	% Growth
1999-200	4.27	.0116	-54.80	8.36	.0227	1.20	25.11	.0682	6.86	37.74	.1025	-8.42	36822.49	10.85
2000-01	4.93	.0111	15.33	21.13	.0474	152.72	27.36	.0614	8.95	53.42	.1199	41.55	44560.29	21.01
2001-02	6.65	.0152	34.93	19.35	.0441	-8.45	30.93	.0706	13.08	56.93	.1299	6.57	43826.73	1.65
2002-03	5.01	.0095	-24.58	108.57	.2059	461.24	45.13	.0856	45.91	158.71	.3010	178.78	52719.43	20.29

(Values in US $ Million) Source: DGCI & S

Table 10: Import of Herbal Medicines

Item	Ayurvedic Unani Herbs			Ayurvedic Unani Medicines (Bulk)			Ayurvedic & Unani Medicines (Branded)			Total (2 + 3 +4)			Total India's Imports	% Growth
HS Code (1)	12119026 (2)			30039001 (3)			30049001 (4)			(5)			(6)	(7)
Year	Import	% Share	% Growth	Import	% Share	% Growth	Import	% Share	% Growth	Import	% Share	% Growth	Imports	% Growth
1999-2000	1.60	.0032	5.76	7.53	.0151	158.32	11.39	.0229	18.89	20.52	.0413	46.47	49738.06	17.34
2000-01	2.02	.0040	25.98	10.09	.0200	34.07	12.53	.0248	10.00	24.64	.0488	20.08	50536.46	1.61
2001-02	2.08	.0040	2.67	11.71	.0228	16.01	17.30	.0336	38.02	31.09	.0605	26.18	51413.29	1.74
2002-03	1.69	.0027	-1867	9.91	.0161	-15.39	30.54	.0497	76.57	42.14	.0686	35.54	61412.13	19.45

(Values in US $ Million) Source: DGCI & S

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CHAPTER - 4

REVIEW OF LITERATURE

REVIEW OF LITERATURE

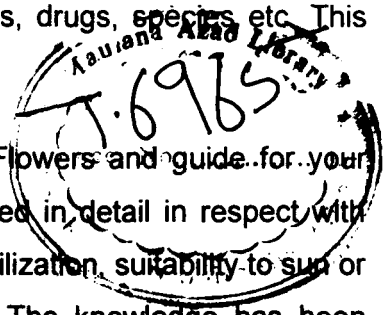
White Law Ainslie (1826) the auther of "Materia Indica" discussed about Indian medicines which are almost exclusively employed by the hindu & other oriental nations, and these are in the form of arts, manufactures and vegetables and which are cultivated as food. This book is materia medica of Medicinal plants. [1]

H. H. Bhagwat Singh Jee (1895), in his book Aryan Medicinal Science has discussed the complete history of Aryan medicine (Hindu system of medicine) that was practiced with great success in the past through centuries. In this book author has pointed out that the fall of Hindu medicine is due to the disuse of medicinal system but it is in his opinion slowly gaining the lost ground. He says in his last chapter "It will thus appear that Indian medicine does not deserve to be condemned off-hand it has its faults, and its imperfections may be many, but it has also its good parts, few though they be. The aims and objects of these two systems are the same in the word *Charaka* that is the true medicine, and that the true physician that can cure and eradicate disease. Let the western and eastern school of medicine then join hand and reconcile themselves to each other wherever possible". This book is of only therapeutic nature and beneficial for the practitioners. [2]

Dr. S.K. Jain (1968), the author of "Medicinal Plants" has pointed out in his book the plants trade name in which the plants are familiar in the trade sector. Some well known and common names of the drugs have also been given. This book has plants historical nature plants family name, Indian name & distribution of the plants in India which have been verified from herbarium materials and authentic literature. A general description about the distribution has also been given. The details of formularies have not been given in this book. [3]

K.M. Nandkarni's (1908), "Indian Plants & Drugs" book attempts to understand 200 drugs, the majority of which are of vegetable origin. In this book author has clarified the sections of herbs and their use in medicine list of

Indian plants. The drugs from which mother tinctures and extracts etc. are prepared according to the homeopathic system of medicine are narrated. There are tables of weight and measures which have been given on a new basis by their respective comparative equivalents. These measures and weights are useful to dealers in agriculturist, forest producers, exporters, importers and businesses dealing in raw products, drugs, species etc. This book is of purely medicinal nature. [4]



In the book by Harry N. Abrams (1975) "Flowers and guide for your Garden" nearly 300 separate genera are discussed in detail in respect with hardiness, case of cultivation, propagation and fertilization, suitability to sun or shade and acid or alkaline soil given for each. The knowledge has been accumulated of many rare and unusual species which have resemblance with many common flowers that have been overlooked simply because they are so common. In this book more than 500 line drawings and diagrams help to identify various species and clarify methods of culture in botanical terms. This book is useful for the persons with floricultural interest. [5]

"Materia Medica of Ayurveda" of Vaidya Bhagwan Dash (1980) is based on *saukhyam* of *todarananda*. Analysis has been made for all aspects of Ayurveda in this book including fundamental principles, materia medica, medicinal chemistry, examination and treatment of disease. It deals with the drugs of vegetable, mineral & animal origin. [6]

The work of A. C. Dey (1980) entitled "Indian Medicinal Plants used on Ayurvedic Preparations" has covered various literature of ancient & modern era. This study has made it possible to collect nearly 500 yoga's preparations, embodying 200 plant species. All the descriptions of medicinal plants have been given by name, botanical description, description of the parts used, quality of good materials and active principle etc. in a plant. Active principle in a plant varies according to variety, physiological forms, quality factors, parts of plant collected along with a method of processing. These entire things are very important for getting a good quality plant drug. This is the best compilation out of such books. [7]

Rustam Jee Naserwan Jee Khory (1981), in his book "Materia Medica of India & their therapeutics" attempts to discuss the organic drugs which are from the vegetable kingdom (origin). This book indicates plants historical nature. The drugs belonging to this kingdom are treated in this work according to the system of natural order and practices of various systems made. [8]

J. D. Hooker, C. B. (1982) in his book "Flora of British Indica" attempts to draw the history of Indian botany up to 1855 covering plants, together with brief essay on the climate and physical features of India, and its division into botanical & geographical province. It is useful for the individuals and researchers in the field of botany. [9]

James A. Murari (1984) in his book "The Plants & Drugs of Sind" has discussed the details of plants and drugs in particular and the flora in general. There is a descriptive index of the flora, the drugs & Asian economic products used by practitioners and others in the province and neighboring countries. It is also useful for the modern medicines practitioners and pharmaceutical industries. This book is an asset for the practitioners, especially those involved in the Ayurvedic medicinal system. [10]

Oligpolunin Adamistainlon (1985), in his book has discussed the wild flowers of the Himalyan region from Kashmir and Laddakh to the Nepal Sikkim border in the east. He has described around 1500 species found mostly above 1200 m height in the upper valleys, the hills and higher mountainous regions up to about 5500 m height. There are over 690 colour photographs of plants taken in the field or from herbarium specimens, which make easy to distinguish the selected plants. [11]

Dian-Dincin Buchman (1987) in his text entitled "Herbal Medicine_the natural way to stay well" clearly says that plants are effective medicines and they are not only answers to good health but also require a full investigation of the varieties of crude & compound herbal medicine as a part of the holistic health practices. There is valuable information about some herbs, which have always been used as food supplements. This is a personal home pharmacy workbook which shows that plants chemicals are released in hcme use. [12]

A. N. Sayeddul Haque Khan (1988) in his study entitled "Marketing of Ayurvedic Medicine in Bangladesh" has described the patterns and problems of marketing process of Ayurvedic medicine in Bangladesh. The objective of the study was to show the structure and methods of Ayurvedic products in Bangladesh. In this study the main focus has been on the distribution problems of Ayurvedic product in Bangladesh. By the study, the author identifies some serious shortcomings and inadequacies of the marketing system of Ayurvedic medicine. Some of the findings of the report may be useful to those involved in policy formulation in Bangladesh. [13]

Dr. Mohd. Iqtedar Hussain Farooqui (1989) the author of "Plants of the Quran" has discussed the plants and its products mentioned in the holy Quran. Those have been described with respect to their botanical identification, chemical composition, medicinal properties and uses. It has facilitated understanding fully several events described in the *Quranic* verses. In this study, the descriptions of *sidratul muntaha, kafur* of paradise, *Zaqqum* of hell, *Mannasalva* for *Bani Israil* are very revealing and throw new light not only on the plants but also on the events associated with them. It has unique combination of plants and Islamic references and it is useful to Islamic thinkers and related practitioners. [14]

V. S. Agarwal (1991) examined the fruits of many species and found that the quality of the fruits has its medicinal and therapeutic value directly proportionately related to its climate e.g. Luffa cylindrica fruits in dry climate are stomachic, whereas from humid moist climate cause colitis. With these observations author has made absolutely a new attempt of describing in alphabetic order, particularly most of the species of Indian plants. It is valuable to all Ayurvedic & Unani practitioners and commercial houses dealing in fruits or drugs from natural resources. The work is based on the actual study of the specimens of species of indigenous sources of distribution in India. [15]

"Survey of Medicinal Plants unit" (1992), has been carried out by the SMPU, RRIUM, Madras under the Council of Unani Medicine, which has discussed the exploration of medicinal flora of the North Arcot District. This

monograph has 79 taxa of medicinally important plants of this region. The report has a brief botanical description of plants, flowering & fruiting seasons. These plants have Unani and Tamil names and authentic Unani medicinal properties with other therapeutic values have been discussed in this report. [16]

Abduallah bin Sina's (1993), "*Al-Qanun filtib* (law of Medicine)" was written originally in Arabic and it was translated first into Latin (1114 – 1189 A.D.). It has lately been translated into English by Dr. O. Cameron Gruner and published in 1970 into five volumes. The first volume deals with general principles of medicinal physiology, pathology, etiology, Agnes, symptoms, general rules, methods of treatment, regimen and anatomy. The second one deals with materia medica, third one covers particular diseases, the fourth one is concerning general therapy and the fifth one is a formulary of compound drugs. [17]

The staff of International Library Association (1996), the compiler of "Medicinal Plants Source Book" guides about institutions, information services, publications and other resources in India which also has studies and reports on plant drugs, traditional/ Indian system of medicine and related subjects. This is the only comprehensive guide regarding plants information and its use in Indian medicinal system. [18]

H. H. Bhgwat singh Jee (1998) in his text "History of Hindu Medical Science" describes the Hindu theory of creation and the principles of hygiene as understood by the Hindus. It also deals with the theory of Indian medicine and Indian meteria medica. The work of the book is based on Hindu philosophy and it mainly focuses on those plants which are associated with them. [19]

M. Y. Hasan, M. Das. et al. (2000) undertook a study to explore the attitude and practices of general practitioners and medical students in the United Emirates with regards to forms of therapy which are not generally accepted by conventional medicine (including herbal medicine etc.). The study found that alternative medicine is in common use to complement

conventional medicine by a section of educated people within the health care system. [20]

Barry C. Beyerstein (2000) in his study "Herbal Hazards" seeks to examine the herbal products which have adverse side effects. He opined that before receiving a license, manufactures should have laboratory research, animal screening and controlled clinical trails. This report indicates that all herbal products are not safe and one should be conscious before using the herbal medicine. It is based on clinical nature of herbal medicine. [21]

The report "The WHO strategies for traditional medicine" (2001) has undertaken the task to understand the traditional medicines definition, situation with regard to the use of traditional medicine, the role of traditional medicine in the health care, areas of uses and the problems of traditional medicines. The difficulties, challenges, policies & regulations are crucial to defining the role of TM / CM in national health care system. In this study main focus has been on the policy making, herbal medicine safety, efficacy and quality of these medicines to promote it. [22]

K. Singh, Rajesh Thaker et al. (2001) in their text "Indian Pharmacy Industry" discuss the emerging trends with increasing focus on R & D, marketing tie-ups brand and company acquisitions beyond 2005. There is a need to do SWOT analysis to identify the strengths, weakness, opportunities and threats of policies regulations and their implication on the industry. The changes that have been brought under drugs price control have also been discussed. [23]

Pharmabiz.Com (2001) in a report "A new regulatory process for herbal medicine product", attempts to regulate the herbal medicines. According to the report the world wide coverage of the internet causing the herbal products widely available all over the world has made the regulation increasingly difficult. In cases of herbal medicine in UK, Germany and Switzerland serious side effects were observed due to the use of Kahva. These types of cases have led to an increased need to regulate herbal medicinal products. [24]

Syed Ahmed Hussain et al. (2003) in his study "Contemporary role & future prospects of medicinal plants in the health care system & pharmaceutical industries of Pakistan" has focused on the role and future prospects of medicinal plants in the herbal medicinal industries. In this study he discussed that historical Middle–Eastern traditional medicine had functioned by the combination of *hakims* and herbal drug dealers. This is a comparative study and is useful for the practitioners and the dealers of herbal medicines. [25]

In the study by ISM&H, WHO (2002) entitled "Demand Study for selected Medicinal Plants" has been undertaken to generate baseline information on demand and supply of plant resources to help in assessing requirement of medicinal plants, through future years and take necessary steps for conservation, cultivation and propagation of medicinal plants in order to avoid shortage in supply continuity. This study has a status document through extensive field surveys on demand and supply of selected 162 medicinal plants and other parameters covering trade chain, export & imports, adulteration in the drugs quality, difference between wild and through cultivation sources. This study has covered only limited no. of plants which are demanded in India. All information is based on crude drugs and not on compound medicines. This is a good document which has information about crude herbal drugs. [26]

Sardesai, Wishwanathan M. (2000) in his paper "Herbal medicines, poisons or potions?" has attempted to understand the role of herbal medicines in health care. He stated that the use of herbs might be risky. Herbs labeled as "natural" do not mean that they are without risks. The current US regulations provide little assurance that commercial herbal preparations have predictable pharmacological effect on that product. The labels should provide accurate information. The potency of herbal medicine can vary from manufacturer to manufacturer and from batch to batch. Popular demand of herbal products has increased considerably in recent years. Some herbs may be beneficial for health, but many of them may be instinctively dangerous when ingested alone and in combination with other supplement. It is true that

effective medicines always have side effects or adverse effects, so medicine should be taken with proper caution. [27]

Jon Stock (2002) discussed in a paper entitled "Ayurveda goes global: Big Bucks and holistic treatment takes Indian traditional medicine to the West" that people in the west are becoming increasingly disgruntled with the detrimental effects of drug therapy. There has been an increase in awareness about the modern medicine. The treatments are palliative rather than curative. The global herbal market is of worth $ 120 billion in four years and Ayurveda represents $ 60 billion worth of market. This study is based on secondary data collected from different sources of Ayurvedic medicine. It shows future prospects of Ayurvedic treatment and shows Ayurvedic medicinal market as fast growing. This study is limited only to Ayurvedic medicines. [28]

Mohit Gera N. S. Bisht et al. (2003) in his study "Market information system for sustainable management of medicinal plants" has discussed about medicinal plants by complementing timber based management offer a basis for managing forest in sustainable manner. One of the important steps in realization of this prospect is to ensure better economic returns to collectors and cultivators of medicinal plants. Availability and access to market information is key to improving returns to producers of medicinal plants. The information is related to demand, supply, uses, distribution channels, product promotion, basic marketing environment and marketing institutions etc. It is reported that better methods of collection, storage, grading and value addition on local level should be adopted for good returns to local communities. This study indicates that market information related to medicinal plants is necessary for its promotion and it is a basic requirement of this era. [29]

Chandnna Parakash Kala (2003) in his study "Commercial exploitation and conservation status of high value medicinal plants across the borderline of India and Nepal in Pittoragarh" covers the herbs found across the borderline of Nepal and India in the Jhulaghat region of pittoragarh district (Uttranchal). A total of 16 medicinal plants were documented in this study, which are in trade for commercial purposes. Most of these medicinal plants are collected from the Baiteadi district of Nepal and then supplied to India.

The study indicates that rare species and endangered categories of plants were also collected from Baitadi district for sale to India in spite of the total ban on their collection for commercial purpose. This study is exclusively based on the herbal plants which are found in the Indo-Nepal boarder. The necessary steps should be taken to protect the medicinal plants for future utilization, conservation and its management. [30]

Nilanjana Das and R.N. Chattopadhyay (2003) in their paper "Inventory of forest based medicinal plant; a case study in South West Bengal" seek to study the identification of medicinal plants frequently used by the forest fringe people of Nayagram range under Midnapur West forest division of West South Bengal. The total of 75 species having medicinal value could be identified and presented along with their identifying character like botanical name, family, plant type etc. and uses of plants components against different diseases. [31]

K. Haridashan, Anupam Cherssose et al. (2003) have their study entitled "Medicinal Plants Sector in Arunachal Paradesh__ An Overview" in which the state of Arunachal Pardesh has been recognized as rich store house for herbal medicine. Through ages people of the state have been utilizing the plant resources to cure various ailments. But in the recent past large scale exploitation of selected species from wild and destruction of habitat have resulted in the depletion of this biological wealth. In the present study an attempt has been made to assess the current status of the resources and the trend of exploitation along with different initiatives taken for sustainable management of these important plant resources. The constraints and the strategy of action plan for development has also been outlined in this paper. [32]

D. Mukhopadhyay (2003) in his paper "Conservation, Processing and Marketing of Medicinal Plants in India: Issues and Perspectives" has discussed about excessive, unregulated exploitation of medicinal plants and increasing globalization of herbs markets which jeopardize future availability of many species. The progressive degradation and loss of forests and other

natural ecosystems add to this problem creating enormous conservation challenges.

The main emphasis has been laid down in this paper on the need to understand and critically evaluate medicinal plants markets and trade patterns. It will be helpful to increase public and industry awareness and support for sustainable production and utilization. To complement cultivation of adoptable species, harvesting from the wild must be guided by accurate inventories and knowledge about the species concerned. [33]

D.M. Tripathi (2003) attempts to highlight in his paper "The best of nature hold the key of success to place Indian herbal drug industry high above the sky" the urgent need to regenerate and modernize the Ayurvedic principle of herbal drugs development following the concept of totality on holistic approaches. Ayurvedic herbal drugs are globally accepted because of added superior quality of protoplasm, easy adaptability and less side effects known to be caused by modern synthetic drugs. This study is based on only secondary sources of information. There is no experimental analysis to support the findings of this paper. He suggests that the honesty & faith will have to be adopted for serving the sick persons to give herbal drug industry a respectable high position in world herbal trade. [34]

Dr. S.S. Parohit and N. D. Prajapati (2003) in their paper "Medicinal plants local heritage with global importance" pointed out that the pharmaceutical industries have made massive investment on pharmacological, clinical and chemical researches all over the world in past five decades. Efforts have been made to discover still more potent plant drugs. In fact a few new drug plants have successfully passed the tests of commercial screening. The benefits of these efforts will reach to the masses in near future, if farmers take initiatives for commercial cultivation of medicinal plants. [35]

Shamim Ahmad & Md. Zulfiqar Alam (2003) the authors of the paper entitled "Rejuvenating the Herbal medicines presentation" aimed at identifying the reasons for the low focus on exploiting the demand potential and meeting

the needs of the market by proper presentation and value added market approach. They say that proper marketing, value addition and consumer preferences are the matters mostly neglected in the whole process. The above study conducts a sample survey of public opinion on Herbal medicine preferences in Patna.

Their study describes that the only option today is to give Herbal Medicine presentability by a way of proper branding, packaging and adding value for money. The objective of the study was to know the consumer preferences on product form, packaging and the size for the Herbal medicine. A few relevant aspects of marketing of Herbal product have been covered in this survey. [36]

C.M.Ketkar (2003) in his paper "Versatile *neem* (Azadirachta indica) the last hope for third world" discussed about the tree Neem. The overall global occurrence was estimated at 64 to 91 million *neem* trees. He reported that the *neem* tree was found in not less than 78 countries worldwide. Its uses are for different purposes especially in therapeutic and cosmetic uses. Other side uses e.g. in the plant protection, grain stock protection, fertilizing the soil, preparation of soap, dental hygiene, animal hygiene, fodders and as wood have also been discussed. [37]

Y. K. Sarin (2003) in his paper "Medicinal plants raw material for Indian drugs & pharmaceutical industry" attempts to study the use of medicinal plants in pharmaceutical industries and its sources of production and demand capacity in India. He concludes by using the secondary information that there has been a tremendous increase in the production of herbal medicines and other items in recent years. This paper makes an appraisal of present status of raw material resources and discusses prospects of its development. [38]

A.K. Bhattacharya and Regina Hansda (2003) in their study entitled "Ex-situ conservation of medicinal and aromatic plants in India with special reference to Madhya Pradesh" discussed the recent trends in ex-situ cultivation of medicinal & Aromatic plants (MAPs) as an alternative to biodiversity conservation and as an additional source of income with special

reference to Madhya Pradesh (MP). Efforts have been made to highlight the problems encountered in cultivation for necessary policy consideration, if this emerging sector becomes financially rewarding and ecologically sustainable. [39]

P.P. Bhojavid (2003) author of the paper entitled "Medicinal plant based forest management problems and prospects" discussed that commercial utilization of medicinal plant resources has the potential to provide innumerable economic, social and ecological benefits, and it also provides unique means of integrating the utilization and conservation of forests but only if the resources are utilised in a sustainable manner. This paper addresses some of the basic questions as to which are essential for medicinal plant based forest management. Firstly the ecological basis of the system of forest management in vogue has been discussed. In its second part the paper raises some issues which need consideration for evolving a management regime for the sustainable development of medicinal plant species of forest origin. [40]

Shamim Ahmad & Md. Zulfeequar Alam (2004) the authors of the paper entitled "Herbal Medicine for the Indian Market" discussed future prospects for Herbal Medicine. They say that concerted efforts both by Herbs cultivators and Herbal Medicine manufacturers can offer it as a golden chance for promoting the countries trade. The main objective of the study was to measure the effectiveness of different treatment systems and to identify the ailments in which herbal medicines are considered to be more effective. Ayurvedic and Unani treatments were found to have wide and fast growing scope in the country and the companies were recommended to concentrate on the herbal medicines meant especially for the ailments in which those were more effective. The study shows that Indian system of medicine has an excellent record for curing the chronic health problems. [41]

Krishan Kumar, Arya and S.S. Bisla (2004) discussed in their paper entitled "Cultivation of medicinal & aromatic plants for agri-business" that the use of medicinal plants in human health had lately become a major global concern. India is bestowed with a wealth of medicinal and aromatic plants,

most of which are traditionally used in Ayurveda and Unani system of medicine in tribal areas as healers for generations. Medicinal and aromatic plants have a high market potential with a world demand of herbal products growing at the rate of 7% per annum. Resurgence of interest in aromatic and medicinal plants products in business has created a rich market. This report described the present cultivation, status and future potential of medicinal plants in agri-business. [42]

O. P. Yadav, C. S. Tyagi, et al. (2004) in their paper entitled "Sustainable use of medicinal plants for people, trade and industry" discussed the market & public demand of medicinal plants. There is a great extinction risk to many medicinal plants and obviously the loss of genetic diversity. The total scenario of demand calls for a sustainable system approach supported by economic viability and innovative ways of value addition, quality control and market support which are essential along with proficient agro technologies, genetic material and down stream processing. [43]

Shamim Ahmad and Md. Zulfeequar Alam(2004) in their paper entitled "Globalisation of Indian Herbal Medicines" have pointed out that Indian System of Medicine (Ayurvedic and Unani in particular) has an excellent record in the domestic market and the herbal wave worldwide has opened tremendous opportunities for Indian herbs and herbal products in the global market.

In the paper the export and import data for last seven years (1996-97 to 2002-03) have been analyzed to trace the trend in the global trade of three items on trade list namely medicinal herbs, bulk herbal medicines and branded herbal medicines. Triennium Average and Triennium growth rates calculated show a very encouraging picture on the export front. Import has also picked up recently but the Triennium Average and Triennium growth rates show a decreasing trend with the exception of branded herbal medicines.

This clearly shows that the future is for the branded products. The constantly changing convenience needs of the end user and growing awareness of consumers towards health and hygiene have provided the dynamics of branding and packaging propped up by the state-of-the-art

solutions. And meeting safety and statutory requirements has become more imperative than ever before. This industry has the power to face these new challenges. The herbal treatment has its roots in our country and it should be standardized and popularized the worldwide using the latest technology and the production, processing and marketing techniques. [44]

Sandhya Wakdikar (2004) in his paper "Global Health Care Challenges_Can India take the lead?" attempts to assess the potential of medicinal plants and analyses prospects of modern medicines and health care products derived from plants origin. She concisely touches upon India's comparative R&D strength, human resources skills, strength of pharmaceutical manufacturing base and traditional market potential. She suggested the measures and incentives to continue utilizing, developing and conserving those resources for sustainable growth of biopharmaceuticals. This paper is also written on the basis of secondary information and focuses on strengths of medicinal plants and its potential in near future. It will be helpful for policy makers and industrialists etc. [45]

Research Gap

From the foregoing review of literature it has been observed that although there is a plethora of literature on different facets, dimensions and aspects of herbal medicine in India yet there is a shortage of literature in the field of modern marketing of compound herbal formulations. As a matter of fact, herbal medicine Industry is by and large unorganized and it is a newly emerging industry, seeking the attention of the government, corporate houses, economists and the researchers. Hence very few books, write-ups and articles have appeared covering the aspects of modern marketing approach of compound herbal products, viz. product, Price, distribution & promotion of the herbal medicine. An effort has been made by the researcher in this study to analyze all the elements of marketing mix for the promotion of herbal medicine in India. The thesis bears the novelty of touching upon all the aspects and hence claims the originality of the research presenting the gravity of issues on the various aspects of herbal industry in India.

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CHAPTER - 5

RESEARCH METHODOLOGY

RESEARCH METHODOLOGY

The study aims at exploring the potentials and finding the means and ways of promoting the herbal health care products by developing effective marketing mix for the achievement of total health of the people of India in particular and the world population in general. The broad aspects of research methodology are briefly given below:

Nature of the Study

The nature of this study is characterized by the following features-

1. It is a Social Research.
2. It is Exploratory.
3. It has an Applied Bias.
4. It relies on Empirical Evidence.

It is a Social Research

Considering the broad classification of researches we put this project into the Social Research category. It aims at obtaining the information on market and changing consumer attitudes towards the herbal medicines/remedies. Marketing itself is a social process, since it is having a human aspect and is resulted by the complex social behavior. The management of marketing is also socially oriented and leads to the improvement of quality of life and supplies better amenities to mankind in keeping with the growing and varied requirements of the society.

Being a social research, it tries to identify the complex human behavior and the set patterns in it. A social research may not be as precise and accurate as are the researches in physical sciences in making predictions. However the human intelligence has led to the development of logical and systematized techniques being reasonably accurate in studying social phenomena. Individually human beings may be unpredictable, but collectively

they tend to be reasonably accurately predictable. Advancements in social research methods have increased the accuracy of predictions considerably.

It is Exploratory

The approach of the study is exploratory in the sense that it is mostly directed towards identifying the various characteristics of the market and to create observations conducive to further study. This approach is generally followed for new areas of investigations where the problem itself may not be very clear and is needed to be diagnosed. The domain of the research is also required to be reasonably wide but properly specified.

This approach was thought necessary for this study in view of the new trends in the Indian market and also it suits the herbal medicines industry. Neither is the herbal medicines industry well defined in India, nor do we get enough examples of studies in this area.

The exploratory nature has necessitated keeping the coverage of the study wide enough to cover all marketing aspects. Had it not been the case, the scope could have been kept very narrow and only one aspect of marketing could possibly have made up an elaborate and voluminous project.

It has an Applied Bias

A research in marketing is required to have a bias for application as D. S. Tull and D. I. Hawkins [1], state in the very first line of their book 'Marketing Research'- "Marketing Research serves a single purpose that of providing information to assist marketing managers and the executives to whom they report to make better decisions". Therefore, in spite of keeping the study wide enough and exploratory in nature, an attempt has been made to relate each aspect of the study with a managerial decision based on it. Each of the hypotheses is related with a management action. This enhances the value of the project beyond the pure academic one. It has specially been mentioned in the objective of the study that it will provide useful guidance to the

management of the existing companies in the industry as well as to the rest of the business community in respect of the emerging opportunities in the field.

It Relies on Empirical Evidence

Relying on experience and observations is always preferable over relying solely on theory, and especially when the available information is insufficient, the empirical study is the only way to get it.

In this particular case also, lack of information on various consumer groups, their tastes and preferences, their changing perceptions has been the main reason for preferring an empirical study. An extensive survey in the four East and North Indian districts/ cities has been conducted and it is expected that the results may necessitate the changes in the presently held opinions and help in building a new theory altogether.

Features of the Survey

When secondary data sources do not provide sufficient data, primary data may be collected. Survey method is the most common method of collecting primary data for marketing studies. Survey is concerned with the administration of questionnaires or interviewing with the group we want to study. We call them respondents.

An advantage of this approach is that it brings the researcher and the respondent face to face and their cooperative efforts help to build up a better research database. Personal contact enables the researcher to use his intelligence to elicit precise information from them and analyze the data in the light of his experience. In fact it establishes a liaison between the research laboratories and field situations and stimulates research both ways.

This approach involves considerable time and effort in field investigations and requires sampling, questionnaire design, questionnaire administration and data analysis. The approach that has been decided to be used in this survey is structured and direct using personal interview method.

To have homogeneity in the survey in all the interviews throughout the segments, a structured method has been used. To cover a geographical region extending to four diverse districts/cities, an unstructured method would have been difficult and unjustified too. A structured method also makes the generalization and prediction easier for the whole population.

Considering the directness in interview, it is always difficult to seek the cooperation of illiterate and ignorant rural masses, whether you are direct or indirect. In many of the aspects, where factual questions were to be asked, the question of being direct or indirect has no meaning. In case of other questions, if you can motivate the less educated people like those of Sitamarhi district to cooperate, the degree of directness hardly makes a difference. Therefore to make the questions simpler and less time-taking, a direct approach was used.

Scope Determination

Covering the whole population of India was beyond the time and cost resources. Therefore, the scope of the study was kept limited. It was decided to cover two cities each of East & North India namely Patna, Sitamarhi (in east), Delhi and Aligarh (in north).

Objectives of the Study

The broad objectives have already been stated in the introduction chapter. The main objectives of the present study are as follows.

1. To assess the effectiveness level of herbal treatment system as perceived by the cross-sections of the consumers in the region under study.
2. To study whether the herbal medicines are perceived to be more effective in certain disease categories and in certain stages of the diseases.
3. To identify the reasons why different cross-sections of the society opt for herbal medicine rather than the other kinds of medicines.

4. To ascertain the assumption of growing trend of Herbalism in health related problems.
5. To measure the performance level of different herbal manufacturers and a few popular brands of herbal remedies.
6. To study the effect of peculiars forms and sizes of herbal medicines in their promotion and identify the more acceptable forms, sizes and packaging types by the cross-sections of the consumers.
7. To assess the preference level of consumers and the doctors for different attributes of herbal medicines.
8. To identify the knowledge sources and the promotional media responsible for convincing and motivating the cross-sections of the consumers and the doctors for using / recommending the herbal remedies.
9. To measure the effect of alternative promotional tools in the promotion of herbal remedies.
10. To assess the attitude of the cross-sections of doctors for trying the newly launched herbal products in place of the ones under their use.
11. To identify and recommend the major steps required for promoting the herbal remedies.
12. To study the impression of the cross-sections of the consumers about the prevailing prices of herbal remedies.
13. To tress out the stocking pattern and measure the movement rate of the popular brands of herbal remedies in different types of stores in different regions under study.
14. To study the regular supply position and to probe in the problems of stock outs for herbal medicines if any.
15. To assess the dealers margin given and accepted by them for selling the herbal remedies.
16. To find the means and ways of promoting the involvement of dealers and investment in herbal medicines in their distribution functions.

Hypotheses

The formulation of hypothesis is an important step in a meaningful research. Hypothesis is an assumption that is sought to be proved or disproved. If there is no hypothesis, what a research is to prove or disprove remains a big question. A well-laid hypothesis also keeps the researcher on the right track and saves his time by not letting him get astray.

The hypotheses have been developed in a descriptive manner rather than making very statistical in their language, as generally stated in most of the quantitative projects. This is mainly because of the exploratory nature of the study. Had it been a research of a more decisional nature, in the sense that some proposed decisions were pending, tied up with the results of the research, the hypotheses would have been made more objective and in purely statistical language.

For example, hypothesis number 15 states, "A substantial portion of doctors feel the need for producing the herbal drug in all forms and sizes". Had there been a managerial decision on some particular market constraint, and if it was decided that the proposal will be adopted only when 70% of the doctors feel the need for producing the herbal drugs in all forms and sizes, the situation would have necessitated changing the above hypothesis in the following manner.

Ho: More than 70% doctors feel the need for producing the herbal drugs in all forms and sizes.

H1: The doctors who feel the need for producing the herbal drug in all forms and sizes are $\leq 70\%$.

Many other hypotheses would have also needed a change in appropriate manner, had there been some decision linked with the findings of the research.

For most of the measurements in the study, no such cut-off points may be specified. The objective is to know the existing situation and its different

variables, which requires the hypotheses to be quite open and their tests very informative rather than being deciding. Therefore, various dimensions which have been identified for different problems have been translated into a number of hypotheses to highlight the interactions and associations among various factors involved.

A number of hypotheses have been developed to be tested for various aspects of the study. These hypotheses have also been classified into four groups to be included in each of the major chapters (6^{th}, 7^{th}, 8^{th} and 9^{th}) separately. The null hypotheses have been listed chapter-wise below:

For Chapter 6 (Market Analysis)

Ho1: There is a distinct level of effectiveness in herbal treatment system as perceived by the consumers of different regions.

Ho2: There is a distinct level of effectiveness in herbal treatment system as perceived by the consumers of different educational level.

Ho3: Effectiveness level of herbal medicines varies in different disease categories as felt by the consumers and by the doctors.

Ho4: Effectiveness level of herbal medicines varies in different diseases categories as felt by the consumers of different educational level and by the doctors with different qualifications.

Ho5: There are certain reasons for the popularity of herbal medicine more important than others as thought by the consumers and by the doctors.

Ho6: There are certain reasons for the popularity of herbal medicine more important than others as thought by different income groups of consumers and by the doctors of different qualifications.

Ho7: The practitioners of alternative medicinal system consider different reasons for the popularity of herbal medicine system.

Ho8: The trial of herbal treatment is more frequent in certain disease stages than the others as felt by the consumers and by the doctors.

Ho9: The trial of herbal treatment in different disease stages varies with the doctors practicing alternative medicines.

Ho10: The trend of herbal medicines' use is perceived to be different in different regions as felt by the doctors and by the dealers/ retailers.

Ho11: The trend of herbal medicines' use is perceived to be different as felt by the doctors practicing alternative medicinal systems and as felt by the dealers/ retailers dealing in alternative medicines.

Ho12: The willingness of the retailers for stocking the herbal medicines varies with the region as well as with the retailers dealing in alternative medicines.

For Chapter 7 (Company/ Product Preferences)

Ho13: The performance level of different drug manufacturers varies in different regions as perceived by the consumers and by the doctors.

Ho14: The performance level of different herbal drug manufactures is differently perceived by the doctors practicing different medicinal systems.

Ho15: A substantial portion of doctors feel the need for producing the herbal drugs in all forms and sizes.

Ho16: The need for producing herbal drugs in all forms and sizes is felt differently by the doctors practicing different medicinal systems.

Ho17: Some forms, packing types and sizes of herbal medicines are more preferred than others by the consumers of different regions.

Ho18: Some forms, packing types and sizes of herbal medicines are more preferred than others by the consumers of different income groups.

Ho19: Some attributes of herbal medicine are more desired than the others by the consumers and by the doctors of different regions.

Ho20: Some attributes of herbal medicine are more desired than the others by the consumers of different professions and by the doctors practicing different medicinal systems.

Ho21: The difficulty level in using the typical forms and methods of herbal medicines is felt differently by the consumers and by the doctors of different regions.

Ho22: The difficulty level in using the typical forms and methods of herbal medicines is felt differently by the consumers of different professions and by the doctors of different medicinal systems.

For Chapter 8 (Promotion and Information Preferences)

Ho23: There are some distinct knowledge sources for herbal medicines for consumers and for the doctors.

Ho24: There are some distinct knowledge sources for herbal medicines for consumers of different educational background and for the doctors practicing alternative medicinal systems.

Ho25: Some media of advertising are reported to be more effective for herbal medicines by the consumers of different regions.

Ho26: Some media of advertising are reported to be more effective for herbal medicine by the consumers of different educational background.

Ho27: On the whole a positive impression is drawn by the consumers from promotional tools used for herbal medicines.

Ho28: On the whole a positive impression is drawn by the consumers of different income groups and by the different age groups from promotional tools used for herbal medicines.

Ho29: The attitude of doctors towards newly launched herbal products varies with the region.

Ho30: The attitude of doctors towards newly launched herbal products varies with the doctors of different qualifications.

Ho31: Major steps required for promoting herbal medicines in the opinion of doctors vary region wise.

Ho32: Major steps required for promoting herbal medicines in the opinion of doctors vary with the practitioners of alternative medicinal systems.

Ho33: Some specific actions are strongly recommended by the dealers / retailers which need priority for the promotion of herbal medicines.

For Chapter 9 (Price & Distribution)

Ho34: Prices of herbal medicines are generally found by the consumers to be at the higher side.

Ho35: Prices perception about herbal medicines as generally held by the consumers vary with their profession and their family income.

Ho36: Herbal medicine stores are the major source that the consumers use for buying the herbal medicines.

Ho37: The educational level of consumers affects the source that they use for buying herbal medicines.

Ho38: Stock-out is a major problem faced by the consumers of different regions.

Ho39: The consumers of different age group and the consumers of different profession face the problem of stock-outs differently.

Ho40: Some herbal brands are moving faster than the others in different cities surveyed.

Ho41: Movement rate of the selected herbal brands varies with the dealers/ retailers dealing in different types of medicines.

Ho42: The sellers are offered higher margin for selling the herbal medicines as compared to that in modern medicines.

Ho43: Investment in herbal medicines' selling is more profitable in the opinion of dealers / retailers.

Ho44: The supply of the herbal medicines to the dealers / retailers is not always regular.

Research Design

It will be useful at this stage to attempt to crystallize the whole research project by way of making a blue- print of the study. The pre-requisite for the purpose will be to specify the data requirement and evaluate it in terms of time and resource constraints. An adjustment in the study becomes inevitable to bring the tasks identified within the available financial and time restraints. This is done so that the amount of information sought matches the resources which are likely to be made available.

The design of the structure of the study consists of seven stages, some of which have to be followed consequently, but others can be followed concurrently. These are the following:

1. Pilot survey.
2. Sample Size Determination.
3. Sample Selection.
4. Questionnaire Design.
5. Field Work.
6. Analysis and Testing.

Now, before we determine the above mentioned variables, it is preferable to prepare a list of the needed information.

Information Requirements

When satisfied with the statement of research objectives, the researcher prepares a list of the information which is needed, to achieve the objectives. Going through the objectives and the hypotheses stated in the previous chapter, it is not very difficult to set down the following information needed for the purpose.

1. What are the important reasons for the popularity of herbal medicines among others?
2. What are the sources of their purchase of herbal medicine?
3. What is the effectiveness level of herbal medicine in different disease categories?
4. What is their perception about different treatment systems?
5. What are the preferred forms and sizes of herbal medicine?
6. What is the influence of different purchase decision factors on the consumers?
7. What the perception of good quality and right product is as held by the consumers?
8. What is the effect of promotional schemes?
9. What are their sources of information?
10. What is the price perception of the consumers about the herbal medicine ?
11. How is the supply of herbal medicine?
12. How attractive is the margin offered by the companies on herbal drugs?
13. Which of the advertising media are heavily used?
14. What is the relation of the above factors with the background factors like geographical region, age, income, education, occupation etc.?

Sources of Data

Other than the secondary sources available to provide the relevant information from different companies, government agencies and the libraries the focus in this research is on the primary sources of information which is collected through survey of the following groups of respondents.

1. Consumers i.e. the potential users of herbal remedies
2. Doctors i.e. the potential advisors / consultants of the herbal medicines
3. Dealers / retailers i.e. the suppliers who stock and offer the herbal medicines to the end users

An effort has been made to cover the cross-sections of the above groups. For example the doctors of all kinds who practice in modern medicine, herbal medicine or homeopathy are surveyed. Similarly the retailers of all kinds of remedies who stock any kind of medicine are included in the sample.

Separate questionnaires have been designed for separate groups of respondents.

Resource-Quantity Compromise

In an ideal world, a field research will involve the personal interviewing of all the individuals who can give relevant information or whose opinion is important. However, a trade-off between ideals and economic reality are inevitable. A number of reasons have been given by Livingstone:

1. Too many people are to be interviewed either in absolute terms or within any reasonable financial budget.
2. It may be impossible to get round all the people who are distantly located.
3. Some people may be unwilling to be interviewed but still might be ready to supply limited information sought in another way than by interview.

There are of course other reasons but these, as well as two of the three listed above, almost inevitably come down to costs. With an unlimited budget most obstacles can be overcome, but no researcher is ever remotely likely to have an unlimited budget.

Another dimension is that of accuracy requirement. The erroneous public opinion polls in the pre-election period sometimes misguide the market researchers demanding the highest level of accuracy maintenance. It is in the nature of these polls, relying on interviews of a thousand or at most two thousand of millions of voters giving rise to a standard error as high as two to

three percent. And in most democratic elections two or three percent can make all the difference to which party wins.

How often do these conditions apply in a business research survey, particularly for a relatively small company? Accuracy to within two or three percent may be an unnecessary refinement, for the individual company's performance is not likely to be affected by rather marginal considerations. What the company needs to know is roughly what share of the market it has, and over time whether it is holding its own or increasing or decreasing its share. If acceptable results can be achieved by 'quick and crude' methods, there is no real justification for going expensively for a far higher level of accuracy than is really required or indeed practical.

The compromise has mainly been done by way of limiting the scope of the study to only Eastern & Northern Zones of the country and a sample has been drawn of a limited number of cities from this. The questionnaire has also been designed to cover only the more relevant questions needed for the study to keep it within the manageable limits. The details of the design variables in the following pages will clearly show the nature of this compromise.

Pilot survey

While trying to prepare a design of the survey, it was thought necessary to conduct a test or pilot survey to ensure the work ability of the design before giving it a final shape. The pilot survey was mainly conducted for three purposes.

1. To determine the sample size.
2. To test the questionnaire.
3. To improve the fieldwork organization.

The most common method of sample size determination requires three kinds of specifications, namely allowable error, confidence coefficient and the estimate of the standard deviation of the population. The first two of these specifications are matters of judgment involving the use of data but the third

specification, the estimate of the standard deviation of the population, is the responsibility of the researcher. Sometimes these estimates are available from the previous studies. But no previous study on these marketing aspects could be known that had been conducted for the industry under consideration.

In the absence of such sources, one has to go for a pilot survey to estimate the population standard deviation and use it for sample size determination.

Another reason for conducting the pilot survey is to ensure that the questionnaire that has been designed and looks simple and unambiguous to the designer will appear equally so to the respondent. There is, therefore, a strong case for trying out the questionnaire in a pilot survey before the main launch. It can be a humbling experience for the designer to find what can go wrong.

If the researcher is not going to do the entire interview himself, it is useful for him to involve others in the pilot survey, while keeping himself also fully associated with it. This gives a good idea to the researcher of the possible difficulties in the fieldwork of the main survey. This helps the researcher in better fieldwork organization and control.

A small sample of fifty respondents was drawn from the city of Aligarh on convenience basis. It comprised of all the 'types' of the consumers i.e. urban, semi-urban and rural. The researcher accompanied with others, who were going to be involved in the main survey, visited a number of places to administer the first draft of the questionnaire. The problems arising in the field situations were carefully noted. The reactions of respondents to different questions were also recorded. The experience led to the modifications in the initial design in the following dimensions.

1. Changing the nature and wordings of some of the questions.
2. Changing the sequence of the questions looking to the level of difficulty.
3. Cutting short the size of the questionnaire by omitting some of the less important questions.
4. Preparing a different instruction set for the investigators.

5. Modifying the fieldwork plan in respect of time and effort requirement.

The analysis of the pilot survey was also done, so as to be used in the sample size determination. This facilitated deciding on the most immediate design variable i.e. sample size determination.

Sample Size determination

The logic of Sampling Distribution gives a relationship as follows-

Number of Standard Errors Implied by Confidence Coefficient = Allowable Error / Standard Error

Where Standard Error (defined as Standard Deviation of the Sampling Distribution) of the 'proportion' is given by-

$$\sigma_p = \sqrt{\frac{\pi\ (1-\pi)}{n}}$$

The area under the sampling distribution between any two points can be calculated in terms of z-values. The z-value for a point is the number of standard errors a point is away from the mean. The z-values may be computed as follows-

$$Z = \frac{\bar{X} - \mu}{\sigma_p} = \frac{D}{\sqrt{p(1-p)/n}}$$

$D = p - \pi$ where Population Proportion = π

Sample Proportion = p

$$\sigma_p = \frac{p - \pi}{z}$$

$$= \frac{D}{Z}$$

$$= \sqrt{\frac{\pi\,(1-\pi)}{n}} \quad \text{or}$$

$$n = \frac{\pi(1-\pi)z^2}{D^2}$$

Using the above formula, we take confidence coefficient level (CL) of 95%. The corresponding z-value associated with CL is 1.96 and take allowable error to be only 5%.

Thus the sample size calculation is summarized as-

Steps:

1. Level of precision	$D = p - \pi = \pm 0.05$
2. Confidence Level (CL)	CL = 95%
3. z-value associated with the CL	z = 1.96
4. Standard Deviation of the Population	Estimate π: π can take various values
5. Sample size	$n = \frac{\pi(1-\pi)z^2}{D^2}$

Now, whatever the proportions (value of p), the sample size comes out to be less than 385. This implies that a sample of size 400 will be more than sufficient to estimate the population proportions with 95 percent confidence, allowing only 5 percent error. Therefore a sample size of 400 has been decided for the study.

Sample Selection

A stratified two stage sampling design has been used. Stratification has been done on the basis of the type of city. The following two regions and the types of cities have been included in the study:

Region:	1. Eastern Zone &	2. Northern Zone
Types of cities:	1. Large size cities &	2. Small cities.

In the first stage two cities were selected from each zone i.e. Eastern Zone and Northern Zone. In the second stage respondents have been taken in equal number from each of the cities to ensure sufficient representation of each zone and the selected city. The whole population (Eastern and Northern India) has been divided into two strata (Divisions) of East and North zone. Out

of these zones four cities were chosen on convenience basis. Consequently the following selections were made.

Zones		Populations*
Eastern Zones		
Patna	(Large city)	47,09,851
Sithamarhi	(Small city)	26,69,887
Northern Zone		
Delhi	(Large city)	1,37,82,976
Aligarh	(Small city)	29,90,388

* On the basis of census India 2001

The sample size of 400 was distributed to these selected cities in equal numbers. The allocation of sample was as follows:

Districts/ Cities	Consumers	Doctors	Dealers/ Retailers	Total
Patna	50	25	25	**100**
Sitamarhi	50	25	25	**100**
Delhi	50	25	25	**100**
Aligarh	50	25	25	**100**
Total	**200**	**100**	**100**	**400**

This type of stratified sampling is on the one hand, expected to allow representation of all segments of the population in sufficient number and on the other hand facilitate using statistical tests to study the behavioral patterns of the different strata.

Questionnaire Design

To collect information from the sample members, we require designing a questionnaire that may either be filled up by the respondents, if they are literate ones or may be filled up by the investigators who interview them, if they are illiterate ones. The kind of questionnaire needed is a simple and straightforward one, in a get-up that may retain their interest till the end, a

style that may not irritate them and its contents that may not lead to a non-response from them.

A good questionnaire is easy to understand, simple to answer, interesting to complete and enjoyable to return. If one wants to design it he needs to know the respondents, their tastes and preferences and their culture. The final drafts of the questionnaires, as used in the main survey have been included in the annexure.

This whole analysis only ensures that the questionnaires are such that respondents can answer the questions correctly, but another equally important aspect is whether they will answer the questions correctly. This aspect calls for an attention to the field work exercise in the process of data collection.

Field Work

Conducting a survey in four cities of two zones requires making a team for the fieldwork. Investigators were required who may be familiar with these cities and who may personally visit these to interview the respondents and get the questionnaire filled up.

There was no difficulty in getting a number of students belonging to these places, residing in the hostels of A.M.U. Aligarh. This was a favorable factor in the conduct of the survey. Many of them were contacted and 12 of them were finally selected for the purpose. They all were graduates who consented to cooperate in the work. Each one of them belonged to a district or a near-by district where he was supposed to conduct the survey.

Time set for the survey was the coming vacations when those students were expected to pay a visit to their homes. This way the traveling expenses to be paid to investigators were saved.

Now the most challenging task of training and motivation to these field workers was ahead. They were given detailed instructions about the purpose of the study, how to locate and approach respondents, to establish rapport, to

ask questions and to obtain and record accurate answers. They were motivated, without any financial reward, for obtaining reliable data, and in no stage of work were they found to be under-motivated.

The instructions given to the field workers were relating to the following aspects:

1. Selection of a respondent.
2. Approaching the respondent.
3. Dealing with the non-response problem.
4. Method of administering the questionnaire.

The selection procedure was explained to them as per the sample design. To some of the respondents, who were literate, the questionnaire was given along with the pen for immediate completion. But for others it was read along with the alternatives given for the answers and their answers were recorded instantly. If a question was not easily understood by respondents, interviewers rephrased it in a way which caused less confusion. Since the questionnaire was mostly structured one with very few open-ended questions, the possibility of variation in their perception and in that of the interviewers were the least.

During the fieldwork, a contact was maintained mainly through e-mails and phone. Instructions were send from time to time to remove difficulties of the field workers. On the return of the investigators, the whole work was evaluated and it was felt that another vacations are required to complete the work which is undone or done unsatisfactorily.

Another plan was prepared for the next vacations and the whole process was repeated once again. Some investigators were replaced by others because of the lack of cooperation from them and many of the old investigators were requested to administer some more questionnaires to replace the incomplete, defective or irrelevant responses in some of the questionnaires.

The field work was finally completed but only after taking up the third phase of work. The whole exercise proved that the realities are different from theories.

Analysis and Testing of Results

The analysis involves converting a series of recorded responses in the questionnaires into descriptive statements and inferences about relationships. The important steps followed in the analysis of this survey are:

1. Editing
2. Coding
3. Tabulation
4. Use of Statistical Tests

The purpose of editing was to ensure that the data requested was present, readable and accurate. Since the questionnaires were fully structured ones, with a very few open-ended questions, the editing was not a very difficult task. The questionnaires found incomplete or illegible were rejected and were replaced by others, arranged in the next phase of the survey.

In the process of coding, a numeric code was assigned to each of the question pertaining to age group, sex, occupation, income group, monthly income group and marital status. Same was done for the answers to these questions.

In the tabulation stage, the responses were recorded from the questionnaires to the "Master Chart". Each row of it showed responses to one questionnaire and the different columns were meant for different questions. Three different master charts were prepared, one for each i.e. consumers, doctors and dealers/ retailers. This information was further condensed on three charts called summarized tabulation sheets. This is a frequency chart showing the frequency of different answers by different segments of the market. Different columns represent the question number and the rows represent the codes of alternative answers, segment-wise.

This is followed by making individual tables for each aspect of the study and a few for cross analysis relating those aspects with background factors like profession, income, sex etc.

For the purpose of drawing conclusions and testing of hypothesis, the following methods were used in the process of data analysis:

1. Frequency and percentage calculation for different parameters
2. Rank coefficient using the ranks and multiplying them with the appropriate weightage-coefficients rank wise
3. Correlation coefficient for comparing the two sets of similar data obtained from different groups of respondents
4. Rating scores for Likert scale analysis by multiplying the frequencies with the appropriate weightage-coefficients
5. Chi square test for independence / significance test

In the above analyses SPSS package was used for calculating the values.

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CHAPTER - 6

MARKET ANALYSIS

MARKET ANALYSIS

The Demand for Drugs

During the past decades the demand for drugs has considerably increased in the country mainly due to an increase in the level of consumption for drugs. Several factors such as an increase in the size of population, better health care facilities, rise in per-capita income and greater employment opportunities etc, have enhanced the demand for drugs. The country has an obligation to take care of the health of their nationals. Plan outlays on the health care provisions and an increased consumption rate are the two important factors that influence the demand for drugs.

A study conducted jointly by the Department of ISM & H, Ministry of Health & Family Welfare, India and the World Health Organization (WHO) has shown that the demand for 162 selected medicinal plants would reach 272618 tonnes at constant demand from 120817 tonnes in 1999 – 2000. [1]

The demands for drugs is affected by several factors such as disease incidence and it trends, quality of life, population characteristics and the state of social & physical environment. Disease incidence and its trend determines the mortality rate in a society, birth rate, infant mortality rate and the prevailing disease in the old age group greatly affects the demand for drugs. [2]

Owing to a number of factors such as the difference in value system, social & economic conditions, increased crimes and violence the demand pattern of drugs in developed countries is different from that of the developing countries. Consequently common ailments in such a society are found more in the form of cardiovascular disease, AIDS, respiratory problem and cancer. Excessive use of drugs may cause health hazards in such a society. On the other hand a number of diseases in all age groups in a poor country are the direct outcome of polluted water, unhygienic condition, poor sanitation, lack of sewage facilities, inaccessibility to public health centers and adulteration for

drugs in such a country and the drugs are found more in the form of anti infective ones. [3]

As far as the nature of demand is concerned for the drugs it is supposed to be not only price inelastic, but also income inelastic. In actual practice however it may or may not be inelastic. The extent to which income and better health care are related, the demand for drugs may be income elastic because as income rises people become more health conscious. As a result the frequency of availing of the medical aid may sharply vary in the four strata in the society i.e. the rich, the upper middle, the lower middle and the poor. The demand for drugs might be income elastic for the first two groups and in elastic for the other two groups. [4]

Market Analysis

Assessing the market scenario, the consumers' attitude towards herbal medicines the following trends are first to be measured. The study selects the following items for analysis in the area under study.

- Effectiveness level of different treatment systems
- Effectiveness level of herbal medicine in different disease categories
- Reasons for popularity of herbal medicines
- Consumer & doctors attitude for trial of herbal treatment in different stages of ailments
- The trend of herbal medicines
- Dealers/ Retailers willingness for stocking the herbal medicine

The measurement of market share of the various items is a simple and very common analysis used in market studies. It is crucial for both the existing players and the new entrants in the industry. It provides a benchmark to set targets and formulate strategies. The sales performance of a company relative to that of its competitors is best reflected by the market share analysis. It is not affected by the changes in the sales volumes, which are due to the environmental changes that affect all the firms equally. If the company's

market share goes up, it is gaining on competitors; if it goes down, it appears to be performing poorer relative to competitors. But Oxenfeldt points out that the conclusions from market share analysis are subject to certain qualifications. [5]

1. The assumption that outside forces affect all companies in the same way is often not true.
2. The assumption that a company's performance should be judged against the average performance of all companies also is not always valid.
3. If a new firm enters the industry, then every existing firm's market share may fall (again not necessarily equally).
4. Sometimes the decline in a company's market share is the result of a deliberate policy to improve profits.
5. Market share fluctuates for many other reasons.

In the present study, an overall market share of the leading brands has been measured for different product categories which is valid for the time the survey was conducted.

The measurement of market potential is crucial. A company wishes to minimize its costs in selling its products. Greatest efficiency results from directing a selling program to the market area where the potential market is the greatest and selling effort is most likely to produce volume sales.

Market potential measures the ability of a market segment to absorb the products of an industry in a specified period of time in which the industries' collective marketing effort has been extended to the maximum. Sherlekar very precisely, analyses the concept in the following words. [6]

"Market (Industry) potential (Demand) is a function (Result) of three variable factors:

a) Aggregate or total purchasing power.
b) Environmental variables.
c) Marketing effort of all organizations offering the product."

The estimation of total purchasing power requires the analysis of the census data relating to the population characteristics, income and its distribution and the source and reliability of the income. The purchasing power is a general indicator of market potential for the consumer goods. It affects equally on all the industries producing goods and services for the consumers and hence it is a matter of interest for the whole business community and does not have any special relevance for an individual industry.

The analysis of the environmental factors affecting market potential requires using a situational approach and it gives a different result for each of the industry. The market potential for a product is generally estimated in respect of the given environment assuming the highest possible level of marketing effort and the offers most favorable to the customers.

Bell describes a number of methods for measuring market potential, of which the direct method using the past sales data is the most simple and common approximation of it but this method is seldom possible when adequate data are not available [7]. Out of the indirect measurement methods available, survey method appears to be most practical. The commercial survey services are therefore commonly used for the purpose. The other indirect methods like market index, store audit, warehouse withdrawal data, chain ratio etc are not very relevant in Indian conditions. Therefore the present study resorts to the survey method.

Effectiveness Level of Different Treatment Systems

Table 1 shows that allopathic treatment has highest effectiveness level i.e. 4.5 on 1–5 scale. Ayurvedic, Unani and Homeopathic treatments have effectiveness level of 3.45, 3.35 and 3.18 respectively. The effectiveness level of herbal treatment (including Ayurvedic, Unani and Homeopathy treatments) in the cities of Patna, Sitamarhi, Delhi and Aligarh are 3.37, 3.32 and 3.34 respectively. This shows more or less similar level of effectiveness in all of the above cities.

In alternative (Herbal) treatment category Ayurvedic treatment has effectiveness level of the highest order in north zone. And in the east zone Homeopathic treatment system has effectiveness level in the top position among those treatment categories.

Hypothesis 1 (Ho1): There is distinct level of effectiveness in herbal treatment system as perceived by the consumers of different regions.

From the above result it can be drawn that the null hypothesis 1 (Ho1) is true. The figures in Table 1 clearly show that.

Table 2 indicates the respondents' education-wise analysis of effectiveness level for different treatment systems. The highly educated (above-graduate) people give their preference for Allopathic treatment though the effectiveness level as reported by them is the lowest in comparison to other people. The rank co-efficient in that class for this treatment is 4.40 on a scale of 1 – 5. Below graduates i.e. matric (Xth class) and below matric have reported an effectiveness level of 4.45 and 4.56 respectively.

Graduates and above graduates have an opinion that Ayurvedic treatment has high effectiveness level while below matric people feel that homeopathic treatment has high effectiveness level within the alternative treatment systems.

Hypothesis 2 (Ho2): There is a distinct level of effectiveness in herbal treatment system as perceived by the consumers of different educational level.

The Hypothesis appears to be true. That can be seen in Table 2.

The above figures show an edge of Allopathy over all others, but the other treatments have a strong presence in the minds of people. Indian system of medicine has an excellent record for curing the chronic health problems that do not respond well to modern medicine.

Herbal drugs are easily accepted by the people because of the reasons like superior quality of protoplasm, easy to adopt, free from all side effects known to be caused by synthetic drugs.

Tables 3 and 5 reveal that herbal medicines are especially effective in 'liver and digestive disorder' followed by 'men and women sexual problems', 'vigour and vitality', 'blood & skin care', 'personal care', 'cold & cough', 'joint & bones problems' and 'children care'.

In above diseases herbal medicines are considered to be more effective than the others. In the opinion of consumers and doctors on a 1 – 5 scale, the effectiveness level of herbal medicines is given almost uniformly by the consumers & by the doctors for different ailments as indicated below.

Disease Categories	Rate by Consumers		Rate by Doctors	
	Co-eff.	Rank	Co-eff.	Rank
Liver and digestive disorder	4.44	1	4.37	1
Vigour & vitality	3.38	3	3.82	3
Cold & cough	3.54	5	3.53	6
Men & women sexual problem	4.18	2	4.09	2
Joint & Bones problem	2.91	6	3.19	7
Children care	2.82	7	2.38	8
Blood & skin care	3.64	4	3.81	4
Personal care (Hair, nail and oral etc)	3.64	4	3.77	5

$r_s = 0.952381$

Area–wise effectiveness level of herbal medicine indicates higher rate of effectiveness level in eastern zone than north zone in almost all the disease categories. The higher effectiveness level in eastern zone is probably due to the fact that this zone is less developed and majority of people especially villagers are getting health care by traditional practitioners.

Table 4 shows respondents' education wise effectiveness level of herbal medicine in different disease categories by the consumers. There is a variation in effectiveness level and this variation is not education-wise. The variation in effectiveness level is in different disease categories. For example, in children care problems the graduates have reported highest effectiveness level of herbal medicine than all others and their rank coefficient is 3.03.

According to WHO survey traditional healers treat 65% patients in Srilanka, 85% in Burma, 80% in India, 60% in Indonesia, 75% in Nepal and 90% in Bangladesh, who prescribe mostly herbal preparations. (8). Centuries old Ayurvedic system can be of remarkable success in treatment of many diseases like spondylitis, arthritis, depression, migraine, skin disease and paralysis etc. if followed under proper guidance. [9]

Table 6 shows effectiveness level of herbal medicine in different disease categories by the qualification of the doctors. All educational groups of doctors have rated effectiveness of herbal medicine in 'liver & digestive disorder' at the highest position and 'children care' at the lowest position among the different disease categories.

Graduates and post graduates in modern medicine practitioners feel herbal medicine has higher effectiveness level in three diseases viz. 'liver and digestive disorder' followed by 'personal care' and 'men & women sexual problems'.

R.M.Ps and graduates in herbal medicine practitioners have a common opinion that herbal medicines have higher effectiveness level for the ailments in this order:__'liver and digestive disorder', 'men & women sexual problems', 'vigour & vitality' and 'blood & skin care etc'.

Table 7 reveals the effectiveness level of herbal medicine as expressed by the practitioners practicing alternative medicine. There is also a clear indication that all types of practitioners have expressed almost same order of effectiveness for ailments categories i.e. 'liver and digestive disorder' in highest position and 'children care' in the lowest effectiveness level of herbal medicine.

It is interesting to note that modern medicine practitioners have also expressed highest effectiveness level for the ailment of 'liver and digestive disorder' (4.05) followed by 'personal care' (3.89), 'blood & skin care' (3.53), 'vigour and vitality' (3.47), 'men and women sexual problems' (3.67), 'cold and cough' (3.26), 'joint & bones problem' (2.74) and 'children care' (2.25).

According to a report, in USA 66% Women have confidence in the safety of herbal medicines and 37% women assume effectiveness of herbal medicine. Even 57% doctors also believe herbal medicines have good benefits. [10]

Ho3: Effectiveness level of herbal medicines varies in different disease categories as felt by the consumers and by the doctors.

In the light of the above analysis the range of variation is 2.82–4.44 by the consumers and 2.38 – 4.37 by the doctors'. Therefore the null hypothesis will be accepted. A correlation co-efficient (r_s) of 0.95381 shows that there is very high degree of correlation between the doctors & consumers in the perception of effectiveness level of herbal medicines in different disease categories.

Ho4. Effectiveness level of herbal medicines varies in disease categories as felt by the consumers of different educational level and by the doctors with different qualifications.

The range of variation is not very high but the variation figures in all the disease categories and in all the educational levels of the consumers and doctors. So, the null hypothesis is true.

This implies that the companies should focus on the medicines for the ailments in which consumers and doctors have more faith on herbal medicines. The companies should also induce the consultants to prescribe herbal medicines for these ailments. And the companies should adopt best R&D activities in those disease areas where herbal medicines have more effectiveness. Advertising and sales promotion should also sufficiently support such herbal medicines.

Reasons for Popularity of Herbal Medicines

Tables 8 to 12 indicate the important reasons for the popularity of herbal medicines. Tables 8 and 10 clearly show the important reasons for the popularity of herbal medicines as reported by the consumers and by the

doctors. The important reasons for popularity of herbal medicines on 1 – 5 scale are indicated below:

Reasons of Popularity	Rating by Consumers		Rating by Doctors	
	Co-eff.	Rank	Co-eff.	Rank
Less side effects	4.38	1	3.77	2
No expiry of medicine	2.62	3	1.93	7
Affordable price	2.54	4	2.31	5
Total eradication of disease	2.97	2	3.25	3
Natural ingredients instead of synthetic ones	2.97	2	3.93	1
Rising trend of Awareness about the traditional medicines	2.03	5	2.55	4
Just a craze without any reason	0.37	6	2.16	6

r_s = 0.625 among the two sets of ranks

Area-wise, 'natural ingredients instead of synthetic ones' has got second position in north zone while this is found to be third in rank in eastern zone by the consumers. It is interesting of note that small city (Sitamarhi) people have confidence that 'affordable price' is the second important reason for popularity of herbal medicine while other cities' people have fourth & fifth position for it. (See Table 8)

Majority of people in the city (Sitamarhi) are less educated based on agriculture who always use for healing local herbal items, which are found in this local area. Modern practitioners charge the fee of very high order. So they usually take traditional treatment, and feel 'affordable price' is the second important reason in comparison to modern one.

In Big cities (Patna and Delhi) doctors said that 'natural ingredients instead of synthetic ones' was the most important reason for the popularity of herbal medicine. Eastern zone & north zone doctors believe that most important reasons for popularity of herbal medicines are in this order:__'natural ingredient instead of synthetic ones' are most important reason followed by 'less side effect', 'total eradication of disease', 'rising trends of awareness about the traditional medicine', 'just a craze without any reason', 'affordable price' and 'no expiry of medicine'. (Table 10)

Fewer side effects are considered to be most import reason by the consumers, while doctors believe that natural ingredients instead of synthetic ones are the most important reasons for popularity of herbal medicine.

On the whole consumer believes that five most important reasons for popularity of herbal medicines are: 'less side effect', 'natural ingredients instead of synthetic ones', 'total eradication of disease', 'no expiry of medicine', 'affordable price' and 'rising trends for the traditional medicines', while doctors reported that five important reasons for it are in this order: 'natural ingredients instead of synthetic ones', 'less side effect', 'total eradication of disease', 'rising trends for the traditional medicines' and 'affordable price'.

The people are becoming increasingly dissatisfied due to the detrimental effects of modern drug therapy. There has been an increase in awareness about the modern medicines i.e. this treatment is palliative rather than curative.

Hypothesis 5 (Ho5): There are certain reasons for the popularity of herbal medicine more important than others as thought by the consumers and by the doctors.

Therefore it is visible in Tables 8 and 10. The null hypothesis will be accepted. The value of $r_s = 0.625$ indicating that the relationship between the consumers and doctors' attitude relating to important reasons for the popularity of herbal medicine is positive and high.

Income-wise differences are indicated in Table 9. 'Fewer side effects' is the topmost reason in all income groups except 'Rs. 3000–5999' income groups which has 'just a craze without any reason' in the top position. The preference for important reasons of popularity of herbal medicines varies among the entire income groups while 'less side effect' reason has more or less similar choice in all the income groups under analysis.

Income group 'below 3000' has important reasons as 'less side effect' (4.24), 'no expiry of medicine' (3.67), 'total eradication of disease' (2.80), 'affordable price' (2.50), 'natural ingredients instead of synthetic ones' (2.43), 'rising trends of awareness about the traditional medicine' (1.90) and 'just a craze without any reason' (1.50). While 'above 12000' income group has 'less side effect' (4.38) in the highest position followed by 'total eradication of diseases' (2.90), 'affordable price' (2.42), 'no expiry of medicine', (2.30) 'rising trends of awareness about the traditional medicine' (2.17) and 'just a craze without any reason' (0.00).

Majority of high income group has life style and immunization related problems. They feel that the herbal medicines keep the immune system strong and eradicate the disease at the root level.

Table 11 reveals the important reasons for the popularity of herbal medicine by the qualification of the doctors. According to the registered medical practitioners (R.M.Ps), it is considered that 'natural ingredients instead of synthetic ones' is the main reason followed by 'total eradication of disease', 'less side effect', 'affordable price' and 'rising trends for the traditional medicines' as the important reasons for the popularity of it.

Graduates in herbal medicine (GH) have opinion that 'less side effect' is the most important reason (4.13), followed by 'total eradication of disease' (3.48), 'natural ingredients instead of synthetic ones' (3.48), 'affordable price' (2.39) and 'rising trends for the traditional medicines' (2.24).

This is interesting to note that while post graduates in herbal medicine (PGH) gave the most important reason as 'total eradication of disease' (4.00) followed by 'less side effect' (3.69), 'natural ingredients instead of synthetic ones' (3.64) and 'rising trends of awareness about traditional medicines' (2.36) on a scale of 1-5.

It has been observed that 'graduates in modern medicine' (GM) reported important reasons for the popularity of herbal medicine differently. First one is 'natural ingredients instead of synthetic ones', followed by 'less

side effect', 'total eradication of disease', 'rising trends about the traditional medicines' and 'affordable price'.

As the figures show the reasons for popularity are varied among the doctors qualification-wise. On the whole 'natural ingredients instead of synthetic ones' has got highest position by the R.M.Ps, graduates and post graduates in modern medicine and the rank co-efficients are (4.00), (4.22) and (4.18) respectively.

Ho6: There are certain reasons for the popularity of herbal medicine more important than others as thought by different income groups of consumers & by the doctors of different qualification.

This hypothesis therefore stands valid. Table 9 & 11 clearly show that 'natural ingredients instead of synthetic ones', 'less side effect' and 'total eradication of disease' etc. are the main reasons for the popularity of herbal medicine and thus the statement is proved to be true.

It is clearly indicated from Table 12 that 'total eradication of disease' (3.88) 'less side effect' (3.67), 'natural ingredients instead of synthetic ones' (3.50), 'affordable price' (2.14) 'rising trends of awareness about the herbal medicine' (2.13), 'no expiry of medicine' (1.69) and 'just a craze without any reason' (0.00) are important reasons for popularity of herbal medicine in the above order as reported by the herbal practitioners.

Modern practitioners have confidence that important reasons are in slightly different order. While practitioners practicing both have got a different order of factors as shown in Table 12.

The above results show different reasons for the popularity of herbal medicine as expressed by the practitioners of alternative medicines.

Therefore Hypothesis 7 (Ho7) will be accepted.

According to a report there are many reasons why people use herbs and others alternative therapies. Often cited is a "sense of control" a mental

comfort taking action. Natural products are also perceived to be healthier than manufactured drugs. [11]

The companies should maintain this faith for herbal medicine in the minds of doctors and consumers. Adulteration in herbal medicine should be avoided, and good manufacturing practices should be adopted. For raising the awareness about herbal medicines, exhibitions and stalls should be arranged especially in rural areas.

Trial of Herbal Treatment

As evident from the figures (Table 13) trial of herbal treatment by consumers in initial stage of disease is reported as 'try as a supplement' followed by 'never try', 'try first' and 'try as a last resort' in the percentages 32.32%, 31.31%, 23.25% and 13.13% respectively. The trial is more frequent in the stage of 'prolonged illness' which is reported as 'try first' (43.22%), 'try as a supplement' (36.18%), 'try as a last resort' (13.57%) and 'never try' (7.04). It is in the intensity of disease that consumers try herbal medicine 'as a supplement' (34.52), 'try as a last resort' (32.99%), 'never try' (29.93%) and 'try first' (3.55%). The choice of herbal treatment 'taken as a supplement' has more or less similar position in all stages of disease.

As a whole, figures clearly show that trial of herbal treatment made is in this order: 'try as a supplement' (34.34), 'try first' (23.40%), 'never try' (22.39%) and 'try as a last resort' (19.87%).

From the doctors' points of view, the trial of herbal treatment (Table 14) in initial stage of disease is justified to 'try first' (32%), 'try as a supplement' (30%), 'try as a last resort' (25%) and 'never try' (13%).

In the intensity of disease the doctors follow the 'try first' (8%), 'try as a supplement' (29%), 'try as a last resort' (19%) and 'never try' (44%). But in prolonged illness herbal treatment choice by the doctors follow 'try as a supplement' (43%) followed by 'try first' (39%), 'try as a last resort' (14%) and 'never try' (4%).

All the doctors have confidence in trial of herbal treatment choice 'as a supplement' (34%), followed by 'try first' (26%), 'never try' (20.33%) and 'try as a last resort' (19.33%). On the whole choice of herbal treatment taken as 'try first' and 'try as a supplement' by doctors is more or less similar in initial stage and in the prolonged stage of disease.

It is observed that majority of doctors are not in favour of herbal treatment in intensity (acuteness) of disease, but some doctors consider it as a supplement in this stage. They point out this treatment to be beneficial in prolonged illness, its use as a supplement is more frequent followed by 'try first' in that stage. And in initial stage of disease they have choice of herbal treatment in this order: 'as a supplement' and 'try as a last resort'. Consumers and doctors have confidence in trail of herbal treatment as a supplement in all the stages of disease uniformly.

Hypothesis 8 (Ho8): The trial of herbal treatment is more frequent in certain disease stages than the others as felt by the consumers and by the doctors.

Whit the above results this hypothesis may be accepted.

A report published in national newspaper (daily) highlights that proper Ayurvedic therapy can cure chronic ailments. Dr. K.N. Gambhir an allopathic doctor agrees with this saying "For many chronic diseases, Ayurveda has proved very effective". [12]

Table 15 clearly concludes the fact that herbal practitioners have the choice of herbal treatment more acceptable in prolonged illness by the approach of 'try first' (30.67%) followed by in initial stage of disease also by 'try firs't (22.67%) and in intensity of disease by 'try as a supplement' (14.67%).

The modern practitioners (M.Ps.) have much confidence in herbal treatment in prolonged illness to try it 'as a supplement' (23.50%), in intensity of disease (acuteness) 'never try' (18.97) and practitioners practicing both

(P.B) have confidence in herbal treatment choice in stage of prolonged illness to 'try it first' (25.49%). This is the favourite choice of herbal treatment in this stage of disease.

Hypothesis 9 (Ho9): The trial of herbal treatment in different disease stages varies with the doctors practicing alternative medicines.

Calculated chi square value for initial stage of disease is $\chi^2 = 40.712$ (df = 6), in intensity of disease $\chi^2 = 28.945$ (df = 6) and in prolonged illness $\chi^2 = 70.129$ (df = 6). The Hypothesis 9 (Ho9) is therefore provisionally accepted.

It may be concluded that the trial of herbal treatment by the herbal practitioners & practitioners practicing both is the frequent choice in prolonged illness and in initial stage of disease, while trial as a supplement in prolonged illness is found more frequent by the modern practitioners. All categories of doctors who prescribe alternative medicines also believe that herbal treatment doesn't respond well in the stage of acuteness.

The companies should therefore develop the products for chronic diseases and for initial stage of treatment and should adopt good manufacturing practices for capturing this potential market.

The Trend of Herbal Medicines

Tables 16 & 18 clearly show that the herbal trend is picking up in all the cities/zones. The positive aggregate figures show that all the cities have a positive transformation in favour of herbal medicines in the market. An interesting thing to be noted here is that this trend is at the early stage of its development. This leaves markets with a lot of space to further spruce up the things and make them work to their advantage by offering new scientific herbal formulations. Indian companies specializing in Ayurveda and Unani need to take special notice of it.

Ho10: The trend of herbal medicines' use is perceived to be different in different regions as felt by the doctors and by the dealers / retailers.

The Chi square test shows the calculated value of zones χ^2 = 0.745 (df=2), for cities χ^2 = 5.701 (df =6) for the doctors (Table 16)
For zones χ^2 = 2.86 (df = 3) and for cities χ^2 =13.87 (df = 9) for dealer/ retailers (Table 18). The test shows that the hypothesis is not true.

Table 17 shows similar trend among all the doctors practicing alternative medicinal system. Here also the data goes in favour of rising trend of herbal medicines. Doctors from all practicing systems have an appreciating gesture for the herbal medicine for better up-keep of themselves and the patients.

Table 19 indicates the trend of herbal medicines' use as perceived by dealers/ retailers who deal in alternative medicines. Prospect of the herbal trend in the respective categories' medicinal dealers is evident and shows that the herbal trend is picking up in all the categories across all the cities under study. An interesting fact that comes to light is that this trend is more in herbal medicines dealers followed by modern medicines' dealers and dealers of both types of medicines.

Ho11: The trend of herbal medicines' use is perceived to be different as felt by the doctors practicing alternative medicinal system and as felt by the dealers/ retailers dealing in alternative medicines.

Calculated chi-square values for doctors (Table 17) is χ^2 = 5.637 (df = 4) and for retailers (Table 19) it is χ^2 = 10.128 (df = 6). Therefore the hypothesis stands rejected.

Willingness for Stocking the Herbal Medicines

It is indicated in Table 20 that willingness for the stocking of herbal medicines by retailers is high in almost all the cities. North zone shows higher

willingness than the east zone i.e. 80% and 75.51% respectively (which includes 'more' & 'much more' choices in the questionnaire).

Dealer wise willingness shows that all types of dealers have the willingness for stocking of herbal medicines more. Among the herbal medicines dealers and both types of medicines' dealers it is 80% and 65% respectively while dealers of modern medicine indicate their willingness only at 41% for 'more' and 25.54% for 'much more' stocking of herbal medicines. (Table 21)

Ho12: The willingness of the retailers for stocking the herbal medicines varies with the region as well as with the retailers dealing in alternative medicines.

The Chi-square test (Table 20) region wise for zones is $\chi^2 = 2.132$ (df = 3) and for Cities it is $\chi^2 = 9.924$ (df = 9). Therefore the hypothesis is not accepted for the regional differences. The Chi-square test (Table 21) for dealers dealing in alternative medicines gives the values $\chi^2 = 13.176$ (df = 6). This hypothesis is therefore accepted for the dealers of different kinds. The hypothesis is therefore partially accepted.

The result confirms the faith in the herbal trend gaining pace in all cities under study. The manufacturers need to take note of the situation and rollout the products with greater emphasis on the herbal remedies. There is a fast changing perception particularly among the people of eastern and northern India (where the survey is conducted) and throughout India in general. The herbal market calls for greater research in the herbal formulations and producing quality products to compete with the foreign products.

Table 1: Effectiveness Level of Different Treatment System as Expressed by the Consumers

Treatment Systems	Levels	City/ Zone						
		Patna	Sitamarhi	East zone	Delhi	Aligarh	North Zone	Total
Allopathic Treatment	Very Low	1		1				1
	Low							
	Moderate	3	2	5	4	6	10	15
	High	15	14	29	19	18	37	66
	Very High	31	34	65	27	26	53	118
Rating Score		225	232	457	223	220	443	900
Rating Coefficient (Score/n)		4.5	4.64	4.57	4.46	4.4	4.43	4.5
Unani Treatment	Very Low	1		1				1
	Low	3	13	16	2	4	6	22
	Moderate	15	16	31	22	28	50	81
	High	23	18	41	17	13	30	71
	Very High	6	3	9	7	3	10	19
Rating Score		159	157	316	167	167	334	650
Rating Coefficient (Score/n)		3.31	3.14	3.22	3.48	3.48	3.48	3.35
Ayurvedic Treatment	Very Low		2	2	2	2	4	6
	Low	7	17	24	3	8	11	35
	Moderate	19	13	32	19	19	38	70
	High	17	15	32	21	16	37	69
	Very High	6	3	9	4	4	8	17
Rating Score		166	161	327	185	167	352	679
Rating Coefficient (Score/n)		3.39	3.22	3.30	3.78	3.41	3.59	3.45
Homeopathic Treatment	Very Low	1	3	4	7	6	13	17
	Low	5	2	7	14	18	32	39
	Moderate	18	12	30	18	9	27	57
	High	24	20	44	7	10	17	61
	Very High	2	13	15	3	6	9	24
Rating Score		171	188	359	132	139	271	630
Rating Coefficient (Score/n)		3.42	3.76	3.59	2.69	2.84	2.77	3.18

Table 2: Effectiveness Level of Different Treatment Systems by Educational Level of Consumer

Treatment Systems	Levels	Education Level				
		<Matric	Matric	Graduate	>Gradu.	Total
Allopathic Treatment	Very Low				1	1
	Low					
	Moderate	2	4	5	4	15
	High	15	9	27	15	66
	Very High	23	24	46	25	118
Rating Score		181	168	353	198	900
Rating Coefficient (Score/n)		4.56	4.54	4.53	4.40	4.50
Unani Treatment	Very Low			1		1
	Low	4	6	11	1	22
	Moderate	12	15	31	23	81
	High	19	15	22	15	71
	Very High	3	1	10	5	19
Rating Score		132	123	249	146	650
Rating Coefficient (Score/n)		3.48	3.32	3.32	3.32	3.35
Ayurvedic Treatment	Very Low	2	1	2	1	6
	Low	6	9	13	7	35
	Moderate	15	13	20	22	70
	High	13	12	34	10	69
	Very High	4	2	7	4	17
Rating Score		134	118	279	148	679
Rating Coefficient (Score/n)		3.33	3.19	3.67	3.36	3.45
Homeopathic Treatment	Very Low	3	2	9	3	17
	Low	5	8	16	10	39
	Moderate	8	9	24	16	57
	High	15	12	22	12	61
	Very High	9	6	6	3	24
Rating Score		142	123	231	134	630
Rating Coefficient (Score/n)		3.59	3.32	3.00	3.05	3.18

Table 3: Effectiveness Level of Herbal Medicine in Different Disease Categories as Expressed by the Consumers

Disease Categories		City/ Zone						
		Patna	Sitamarhi	East zone	Delhi	Aligarh	North zone	Total
Liver & Digestive Disorder	Rating Score	228	233	461	224	189	413	874
	Coeff.	4.56	4.66	4.61	4.48	4.02	4.26	4.44
Vigour & Vitality	Rating Score	181	151	332	165	132	297	629
	Coeff.	4.02	4.31	4.15	3.84	3.38	3.62	3.88
Cold & Cough	Rating Score	175	175	350	174	167	341	691
	Coeff.	3.50	3.50	3.50	3.55	3.63	3.59	3.54
Men's & Women's Sexual Problem	Rating Score	187	179	410	183	169	334	718
	Coeff.	4.07	3.58	4.27	3.66	5.28	4.07	4.03
Joint & Bones' Problem	Rating Score	145	136	281	98	139	237	518
	Coeff.	3.09	2.89	2.99	2.51	3.09	2.82	2.91
Children Care	Rating Score	149	145	294	126	121	247	541
	Coeff.	2.98	2.96	2.97	2.68	2.63	2.66	2.82
Blood and Skin Care	Rating Score	201	178	379	173	144	317	696
	Coeff.	4.02	3.56	3.79	3.68	3.27	3.48	3.64
Personal Care (Hair, Nail, Oral & etc.)	Rating Score	187	179	366	183	169	352	718
	Coeff.	3.74	3.58	3.66	3.66	3.60	3.63	3.64

Table 4: Effectiveness Level of Herbal Medicines in Different Disease Categories by Education Level of Consumers

Disease Categories		Education Level				
		<Matric	Matric	Graduate	>Graduate	Total
Liver & Digestive Disorder	Rating Score	178	162	336	198	874
	Coeff.	4.56	4.38	4.42	4.40	4.44
Vigour & Vitality	Rating Score	116	108	260	145	629
	Coeff.	3.87	4.00	3.88	3.82	3.88
Cold & Cough	Rating Score	132	133	266	160	691
	Coeff.	3.47	3.59	3.55	3.56	3.54
Men's & Women's Sexual problem	Rating Score	160	126	295	163	744
	Coeff.	4.44	4.20	4.10	4.08	4.18
Joint & Bones' Problem	Rating Score	103	111	196	108	518
	Coeff.	2.78	3.36	2.76	2.92	2.91
Children Care	Rating Score	100	98	207	136	541
	Coeff.	2.63	2.80	2.80	3.02	2.82
Blood and Skin Care	Rating Score	131	143	270	152	696
	Coeff.	3.45	3.86	3.60	3.71	3.64
Personal Care (Hair, Nail, Oral & etc.)	Rating Score	137	148	276	157	718
	Coeff.	3.51	4.00	3.63	3.49	3.64

Table 5: Effectiveness Level of Herbal Medicines in Different Disease Categories as Expressed by the Doctors

Disease categories		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Liver & Digestive Disorder	Score	119	111	230	107	100	207	**437**
	Coeff.	**4.76**	**4.44**	**4.60**	**4.28**	**4.00**	**4.14**	**4.37**
Vigour & Vitality	Score	99	97	196	94	92	186	**382**
	Coeff.	**3.96**	**3.88**	**3.92**	**3.76**	**3.68**	**3.72**	**3.82**
Cold & Cough	Score	90	89	179	78	89	167	**346**
	Coeff.	**3.60**	**3.71**	**3.65**	**3.25**	**3.56**	**3.41**	**3.53**
Men's & Women's Sexual Problems	Score	118	92	210	96	78	174	**384**
	Coeff.	**4.92**	**4.00**	**4.47**	**3.84**	**3.55**	**3.70**	**4.09**
Joints & Bones' Problem	Score	72	73	145	73	72	145	**290**
	Coeff.	**3.00**	**3.32**	**3.15**	**3.17**	**3.27**	**3.22**	**3.19**
Children Care	Score	59	53	112	50	57	107	**219**
	Coeff.	**2.46**	**2.21**	**2.33**	**2.38**	**2.48**	**2.43**	**2.38**
Blood & Skin Care	Score	95	84	179	97	90	187	**366**
	Coeff.	**3.96**	**3.65**	**3.81**	**3.88**	**3.75**	**3.82**	**3.81**
Personal Care (Hair, Nail, Oral, etc.)	Score	100	87	187	96	86	182	**369**
	Coeff.	**4.17**	**3.48**	**3.82**	**3.84**	**3.58**	**3.71**	**3.77**

Table 6: Effectiveness Level of Herbal Medicines in Different Disease Categories as Expressed by the Qualification of the Reporting Doctors

	Qualification of Doctors											
	RMP		GH		GM		PGH		PGM		Total	
Disease Categories	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Liver & Digestive Disorder	20	5.00	119	4.76	105	4.20	62	4.77	131	3.97	437	4.37
Vigour & Vitality	18	4.50	104	4.16	81	3.24	60	4.62	119	3.61	382	3.82
Cold & Cough	13	3.25	94	3.92	84	3.36	44	3.67	111	3.36	346	3.53
Men's & Women's Sexual Problems	20	5.00	114	4.56	80	3.64	58	4.46	112	3.73	384	4.09
Joints & Bones' Problem	14	3.50	80	3.48	66	2.87	54	4.15	76	2.71	290	3.19
Children Care	10	2.50	57	2.59	52	2.08	34	2.62	66	2.36	219	2.38
Blood & Skin Care	16	4.00	98	4.08	88	3.52	57	4.38	107	3.57	366	3.81
Personal Care (Hair, Nail, Oral, etc.)	11	2.75	90	3.60	97	4.04	51	3.92	120	3.75	369	3.77

RMP=Registered Medical Practitioner, GH=Graduate in Herbal medicines, GM=Graduate in Modern Medicines
PGH=Post Graduate in Herbal Medicines, PGM=Post Graduate in Modern Medicines

Table 7: Effectiveness Level of Herbal Medicines in Different Disease Categories as Expressed by the Practitioners of Alternative Medicine System

	Mode of Practice							
	HP		MP		PB		Total	
Disease Categories	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Liver & Digestive Disorder	120	4.80	235	4.05	82	4.82	437	4.37
Vigour & Vitality	111	4.44	201	3.47	70	4.12	382	3.82
Cold & Cough	94	3.92	189	3.26	63	3.94	346	3.53
Men's & Women's Sexual Problems	118	4.72	191	3.67	75	4.41	384	4.09
Joints & Bones' Problem	97	3.88	137	2.74	56	3.50	290	3.19
Children Care	61	2.54	117	2.25	41	2.56	219	2.38
Blood & Skin Care	106	4.42	194	3.53	66	3.88	366	3.81
Personal Care (Hair, Nail, Oral, etc.)	85	3.40	218	3.89	66	3.88	369	3.77

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 8: Important Reasons for the Popularity of Herbal Medicine Reported by the Consumers

Factors		City/ Zone							
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total Score	Overall Ranks
Less Side Effect	Rank Score	221	220	441	227	208	435	876	1
	Coeff.	4.42	4.49	4.45	4.54	4.08	4.31	4.38	
No Expiry of Medicine	Rank Score	78	139	217	88	93	181	398	3
	Coeff.	2.52	2.90	2.71	2.59	2.38	2.49	2.62	
Affordable Price	Rank Score	78	82	160	87	121	208	368	4
	Coeff.	2.17	3.15	2.66	2.23	2.75	2.49	2.54	
Total Eradication of Disease	Rank Score	150	133	283	145	115	260	543	2
	Coeff.	3.13	2.77	2.95	3.09	2.88	2.98	2.97	
Natural Ingredients Instead of Synthetic Ones	Rank Score	155	111	266	136	141	277	543	2
	Coeff.	3.37	2.47	2.92	2.96	3.07	3.01	2.97	
Rising Trends of Awareness About the Traditional Medicine	Rank Score	65	64	129	63	64	127	256	5
	Coeff.	1.81	1.94	1.87	2.03	2.46	2.25	2.03	
Just a Craze without any Reason	Rank Score	3	1	4	3	8	11	15	6
	Coeff.	1.00	1.00	1.00	1.50	2.00	1.75	0.37	

Table 9: Important Reasons for the Popularity of Herbal Medicine Reported by the Income Groups of Consumers

Factors of Herbal Medicine		Income Level					Total	Over all Rank
		Below 3000	3000-5999	6000-8999	9000-11999	Above. 12000		
Less Side Effect	Rank Score	72	236	187	153	228	876	1
	Coeff.	4.24	4.63	4.25	4.25	4.38	4.38	
No Expiry of Medicine	Rank Score	55	113	86	52	92	398	3
	Coeff.	3.67	2.83	2.46	2.36	2.30	2.62	
Affordable Price	Rank Score	30	80	104	62	92	368	4
	Coeff.	2.50	2.42	3.15	2.14	2.42	2.54	
Total Eradication of Disease	Rank Score	42	131	121	101	148	543	2
	Coeff.	2.80	2.79	2.88	3.06	3.22	2.97	
Natural Ingredients Instead of Synthetic Ones	Rank Score	34	124	123	123	139	543	2
	Coeff.	2.43	2.76	3.08	3.42	2.90	2.97	
Rising Trends of Awareness about the Traditional Medicine	Rank Score	19	76	50	46	65	256	5
	Coeff.	1.90	2.00	1.85	2.19	2.17	2.03	
Just a Craze without any Reason	Rank Score	3	5	4	3	0	15	6
	Coeff.	1.50	5.00	1.00	1.00	0.00	1.50	

Table 10: Important Reasons for the Popularity of Herbal Medicine Reported by The Doctors

Factors of Herbal Medicine		City/ Zone							
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total	Over all rank
Less Side Effect	Rank Score	58	91	149	91	88	179	328	2
	Coeff.	3.05	3.96	3.50	3.96	4.00	3.98	3.77	
No Expiry of Medicine	Rank Score	28	32	60	34	37	71	131	7
	Coeff.	1.75	2.13	1.94	1.79	2.06	1.92	1.93	
Affordable Price	Rank Score	61	45	106	33	39	72	178	3
	Coeff.	2.44	2.65	2.54	1.83	2.29	2.06	2.31	
Total Eradication of Disease	Rank Score	73	62	135	47	52	99	234	4
	Coeff.	3.65	3.10	3.38	3.36	2.89	3.12	3.25	
Natural Ingredients instead of Synthetic Ones	Rank Score	92	93	185	102	102	204	389	1
	Coeff.	4.00	3.72	3.86	4.08	3.92	4.00	3.93	
Rising Trends of Awareness about the Traditional Medicines	Rank Score	56	40	96	59	44	103	199	5
	Coeff.	2.95	2.22	2.58	2.68	2.32	2.50	2.55	
Just a Craze without any Reason	Rank Score	7	12	19	9	13	22	41	6
	Coeff.	2.33	1.71	2.02	2.25	2.60	2.43	2.16	

Table 11: Important Reasons for the Popularity of Herbal Medicines Reported by the Qualification of the Doctors

Factors		Qualification of Doctors					Total	Over all Rank
		RMP	GHM	GMM	PGHM	PGMM		
Less Side Effect	Rank Score	13	99	76	48	92	328	2
	Coeff.	3.25	4.13	3.62	3.69	3.68	3.77	
No Expiry of Medicine	Rank Score	5	31	35	7	53	131	7
	Coeff.	1.67	1.82	2.06	1.75	1.96	1.93	
Affordable Price	Rank Score	5	43	53	12	65	178	5
	Coeff.	2.50	2.39	2.52	1.33	2.41	2.31	
Total Eradication of Disease	Rank Score	15	73	42	48	56	234	3
	Coeff.	3.75	3.48	3.00	4.00	2.67	3.25	
Natural Ingredients Instead of Synthetic Ones	Rank Score	16	87	97	51	138	389	1
	Coeff.	4.00	3.48	4.22	3.64	4.18	3.93	
Rising Trends of Awareness about the Traditional Medicines	Rank Score	5	38	56	26	74	199	4
	Coeff.	2.50	2.24	2.55	2.36	2.85	2.55	
Just a Craze without any Reason	Rank Score	1	4	16	3	17	41	6
	Coeff.	1.00	1.33	2.29	1.50	2.83	2.16	

RMP=Registered Medical Practitioner, GHM = Graduate in Herbal Medicines, GMM = Graduate in Modern Medicines
PGHM = Post Graduate in Herbal Medicines, PGMM = Post Graduate in Modern Medicines

Table 12: Important Reasons for the Popularity of Herbal Medicine Reported by the Practitioners of the Alternative Medicine System

Factors	Mode of Practice						Total		Overall Rank
	HP		MP		PB				
	R.Score	Coeff.	R.Score	Coeff.	R.Score	Coeff.	R.Score	Coeff.	
Less Side Effect	88	3.67	176	3.74	64	4.00	328	3.77	2
No Expiry of Medicine	22	1.69	87	2.02	22	1.83	131	1.93	7
Affordable Price	47	2.14	114	2.43	17	2.13	178	2.31	3
Total Eradication of Disease	93	3.88	87	2.64	54	3.60	234	3.25	4
Natural Ingredients Instead of Synthetic Ones	91	3.50	235	4.20	63	3.71	389	3.93	1
Rising Trends of Awareness about the Traditional Medicines	34	2.13	137	2.74	28	2.33	199	2.55	5
Just a Craze without any Reason	0	0.00	34	2.43	7	1.40	41	2.16	6

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 13: Trial of Herbal Treatment in Different Disease Stages as Preferred by the Consumers

Herbal Choice	Stages of Disease							
	In Initial Stage of Disease		In Intensity of Disease		In Prolong illness		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Try First	46	23.23	7	3.55	86	43.22	139	23.40
Try as a Supplement	64	32.32	68	34.52	72	36.18	204	34.34
Try as a Last Resort	26	13.13	65	32.99	27	13.57	118	19.87
Never Try	62	31.31	57	28.93	14	7.04	133	22.39
Total	198	100.00	197	100.00	199	100.00	594	100.00

Table 14: Trial of Herbal Treatment in Different Disease Stages as Preferred by the Doctors

Herbal Choice	Stages of Disease							
	In Initial Stage of Disease		In Intensity of Disease		In Prolong illness		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Try First	32	32	8	8	39	39	79	26.33
Try as a Supplement	30	30	29	29	43	43	102	34.00
Try as a Last Resort	25	25	19	19	14	14	58	19.33
Never Try	13	13	44	44	4	4	61	20.33
Total	100	100	100	100	100	100	300	100.00

Table 15: Trial of Herbal Treatment in Different Disease Stages as Preferred by the Doctors Practicing Alternative Medicines

Herbal Treatment Choice		Mode of Practice							
		H.P		M.P		P.B		Total	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
In Initial Stage of Disease	Try First	17	22.67	5	2.87	10	19.61	32	10.67
	Try as a Supplement	6	8.00	19	10.92	5	9.80	30	10.00
	Try as Last Resort	2	2.67	21	12.07	2	3.92	25	8.33
	Never Try	0	0	13	7.47	0	0	13	4.33
In Intensity of Diseases (Acuteness)	Try First	5	6.67	3	1.72	0	0	8	2.67
	Try as a Supplement	11	14.67	8	4.60	10	19.61	29	9.67
	Try as Last Resort	5	6.67	14	8.05	0	0	19	6.33
	Never Try	4	5.33	33	18.97	7	13.73	44	14.67
In Prolong illness (Chronic Stage)	Try First	23	30.67	3	1.72	13	25.49	39	13.00
	Try as a Supplement	0	0	41	23.56	2	3.92	43	14.33
	Try as Last Resort	2	2.67	10	5.75	2	3.92	14	4.67
	Never Try	0	0	4	2.30	0	0	4	1.33
Total		75	100.00	174	100.00	51	100.00	300	100.00

HP=Herbal Medicines Practitioners, MP= Modern Medicines Practitioners, PB= Practitioners Practicing Both

Table 16: The Trend of Herbal Medicines Use as Perceived by the Doctors

Trend Noticed	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rising Trend	22	88	21	84	43	86		88	22	88	44	88	87	87
Static Trend	2	8	4	16	6	12	3	12	1	4	4	8	10	10
Declining Trend	1	4			1	2			2	8	2	4	3	3
Total	25	100	25	100	50	100	25	100	25	100	50	100	100	100

Table 17: The Trend of Herbal Medicines Use as Perceived by the Doctors Practicing Alternative Medicinal Systems

Trend Noticed	Mode of Practice							
	H.P		M.P		P.B		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rising Trend	23	92	47	81.03	17	100	87	87
Static Trend	1	4	9	15.52			10	10
Declining Trend	1	4	2	3.45			3	3
Total	25	100	58	100.00	17	100	100	100

HP=Herbal Medicines Practitioners, MP= Modern Medicines Practitioners, PB= Practitioners Practicing Both

Table 18: The Trend of Herbal Medicines Use as Perceived by the Retailers

Trend Notice	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Fast Increasing	8	32	3	12	11	22	5	20	7	28	12	24	23	23
Increasing	12	48	20	80	32	64	17	68	15	60	32	64	64	64
Same	5	20	2	8	7	14	1	4	3	12	4	8	11	11
Declining							2	8			2	4	2	2
Fast Declining														
Total	25	100	25	100	50	100	25	100	25	100	50	100	100	100

Table 19: The Trend of Herbal Medicines Use as Perceived by the Retailers Dealing in Alternative Medicines

Trend Notice	Types of Dealer							
	Herbal Medicines		Modern Medicines		Both Type of Medicines		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Fast Increasing	5	25	6	15	12	30	23	23
Increasing	14	70	26	65	24	60	64	64
Same	1	5	8	20	2	5	11	11
Declining					2	5	2	2
Fast Declining								
Total	20	100	40	100	40	100	100	100

Table 20: Willingness of The Retailers for Stocking the Herbal Medicines

Stocking Choice	City/ Zones													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Much More	8	33.33	3	12.00	11	22.45	4	16.00	4	16.00	8	16.00	19	19.19
More	12	50.00	14	56.00	26	53.06	17	68.00	15	60.00	32	64.00	58	58.59
The Same	3	12.50	8	32.00	11	22.45	4	16.00	6	24.00	10	20.00	21	21.21
Less														
Very less	1	4.17			1	2.04							1	1.01
Total	24	100.00	25	100.00	49	100.00	25	100.00	25	100.00	50	100.00	99	100.00

Table 21: Willingness of The Retailers Dealing in Alternative Medicines for Stocking the Herbal Medicines

Stocking Choice	Types of Dealer							
	Herbal Medicines		Modern Medicines		Both Type of Medicines		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Much More	4	20.00	10	25.64	5	12.50	19	19.19
More	16	80.00	16	41.03	26	65.00	58	58.59
Same			12	30.77	9	22.50	21	21.21
Less								
Very Less			1	2.56			1	1.01
Total	20	100.00	39	100.00	40	100.00	99	100.00

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CHAPTER - 7

COMPANY/ PRODUCT PREFERENCES

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Product & Market Diversification

Production policies are the general rules that management makes to guide itself in making product decisions. Developing new products, modifying and improving upon the existing ones, diversifying into new areas and markets, branding and survey of market demand are some of the key areas of product planning. "Product policy may be stated in the form of a series of either short definitions or of questions arranged as a check list" say Cundiff and Still. [1]

A product policy according to Kline is "the strategy for improving a company's overall sales and profit position in respect of a particular product as well as to promote the sales of the company's other products, and in case this policy hinders the sale of other products of the company, it should have greater potential long-range profit than the products in conflict with it". [2]

Product Planning Development

Health for all has been accepted as the main objective of the government's health policy. An important aspect of this policy is to bring about an increase in the life expectancy of the people from the existing level and to provide better health care facilities both in rural as well as in urban areas.

To achieve these objectives a multidimensional strategy has been evolved by the government. Product development forms an important aspect of this strategy.

Product development is one of the basic considerations of product policy. Product development is necessary owing to change in demand, technological changes and profit under price competition. In a highly competitive market it is risky for company to rely exclusively on its existing products. Customers want and expect need atonement and improved

products. A company programme that ensures searching for new products is therefore a necessity [3]

Product development has been defined in a number of ways. Kotler's definition of new products includes: original products, product improvements, product modifications and a new brand that a firm brings into existence through its own R & D efforts. [4]

Defining product planning and product development, Stanton says, "the former embraces all activities which enable producers and middlemen to determine what should constitute a company's line of products, requiring an estimate of the industry's market potential, company's sales potential, cost requirements and profit possibilities, whereas the latter i.e., product development is a more limited term, encompassing technical activities of product research, engineering and design". [5]

Stanton adds that the scope of product planning and product development activities includes decision making and programming relating to the following. [6]

1. Which products should the firm make and which should it buy?
2. Should the company expand or simplify its line?
3. What new uses are there fore each item?
4. What brand name, package, and label should be used for each product?
5. What should be the product style, design, size and colour, and
6. How should the product be priced?

Product development in drug industry does not merely depend upon chemists and pharmacologists. It is also related to marketing conditions and favourable attitudes of the various market segments. A particular product affects its market value and its production too. The development of herbal drug therapy is a symbol of the movements towards the good health of inhabitants. Since the independence of the country considerable improvements have taken place in this direction.

The manufacturers are required to formulate their product strategy in a way that can match the demand of consumers.

The product development strategy comprises the following:

1. Product line extension strategy
2. Diversification strategy
3. Brand strategy

Product Line Extension Strategy

Groups of products that are used together, sold to the same customers and marketed through the same channels are known as product line. Extension in these product lines is said to occur when some additions in their width or depth are made for holding their position in the market.

Their width relates to the number of product lines in product mix and depth refers to the number of items in each line. In product line extension strategy different aspects are to be taken into consideration, which may vary from firm to firm, and from one situation to another.

A drug manufacturing company normally plans to produce many product lines such as anti inflammatory, respiratory stimulants, expectorants and blood purifiers etc. Each of these therapeutic groups represents a particular product line while in each line a number of drugs are produced by a firm.

Most of the herbal drug producing firms generally do not prefer to go to the maximum possible extent in their product lines extension strategy, rather they prefer to adopt a strategy which gives greater emphasis to the products which are more profitable in each product line, while the less beneficial products are neglected and some times they are totally dropped.

Diversification Strategy

The current strategy appears to involve diversifying route of production and market penetration. Whenever a company is challenged by internal or external factors and starts losing its profitability, it becomes necessary for it to go in for diversification. However, decision concerning diversification is not merely dependent on profitability but also on others factors.

Some companies may add new product lines purely for the purpose of growing big in terms of size whereas some others may decide to diversify for capturing a greater share of the market.

Internal factors necessitating diversification include scarcity of skilled labour force, absolute technology and introduction of close substitutes etc. Whereas external factors are abolition of brand names, policy of the government, licensing problems etc. [7]

Diversification in terms of products has also taken place in a numbers of areas in the drugs and pharmaceutical industry. Product diversification activity in the herbal drug industry has been undertaken in areas such as agrochemicals, cosmetics, toiletries and food products.

Since independence, the Indian herbal industry has faced both internal as well as external constraints till the eighties when the industry has lacked technical knowledge and therefore depended on old technology based production.

Branding Strategy

A brand name is a term, sign, symbol, design or combination of any of them. It is intended to identify the products of one seller or group of sellers and differentiate them from those of its competitors.

Branding strategy refers to the task of product definition i.e. distinguishing the product of one manufacturer from those of others. Branding all the products very often puts an extra burden on the customers due to the

heavy expenditure involved in promotional activities. It has its ultimate effect on price that a customer unnecessarily pays for the branded articles.

This strategy, in general, is adopted by the companies operating in developed countries where the product differentiation is very necessary for the profitable growth of business for people in those countries are mostly quality conscious rather than price conscious.

In developing countries like India, people are mostly price conscious. Branding strategy in this type of environment turns out to be a controversial issue. Since mobilization of financial and human resources, merely for promotional activities, unnecessarily increases the total cost of a product. In India companies brand their product for capturing a larger share of the market.

Branding for Herbal Medicines

A brand name should form an integral part of product development and design and particularly for herbal drugs it should be selected on the following bases.

1. It may be associated with certain salient features that a product possesses. These features may include the action of the product, it's design, it's advantages over other products and features that distinguish it from the product of the competitions.
2. Another basis for selecting a good brand name is the content of the product. It should be such that it is able to highlight the various ingredients of the drugs.
3. The name of manufacturing company should also reflect in branding.

Brand name of a drug should be decided keeping the integrated position of the product in mind.

This chapter deals with the part of consumer behavior related with product and packaging. The following aspects have been chosen to be studied in this area.

- Performance Level of Herbal drug Industry.
- Need/ Performance for Herbal drug forms, packaging and sizes.
- Product attributes that are preferred by consumers and by doctors.
- Assess the difficulty level in using the typical forms and methods of Herbal medicines.

Need recognition is the first thing in the buying process, which is followed by product awareness, interest, evaluation, intention, purchase and post-purchase behavior. When the need arousal for the selected products has been ascertained in the previous chapter, the next thing is to track the consumers' attitude towards these.

In the process of purchase decision, the consumer considers the set of alternative solutions or more technically 'evoked set', as Howard and Sheth call it [8]. Narayana and Markin refine the concept by recognizing a few more sets on the way to a purchase decision [9]. The total set represents all the brands available in the market, whether or not the buyer knows about them. The total set can be divided into the unawareness set (those brands that consumer does not recall) and the awareness set (that the consumer recalls) of the brands, only some of them meet his buying criteria and those constitute his consideration (or evoked) set. The others are relegated to an infeasible set. As consumer gives more thought to these brands, a few of the brands remain strong choice and constitute his choice set, the others being relegated to a non-choice set. He carefully evaluates the brands in the choice set and then makes his final decision.

Kotler suggests that the companies should work hard to get their brands included in the buyer's awareness set and to remain in the successive consideration and choice set. He further adds that the marketer must research the other brands that are likely to be included and the criteria used by the buyer as he moves to successively smaller sets in making his decision. [10]

The first aspect taken here is the choice of various product attributes that one prefers while making a final decision on which brand to purchase. The consumers today are getting very conscious and choosy about the products they go for. With the ever-increasing competition, companies are

forced to adopt some differentiators, to find a place in the already crowded market. This has led to a vast choice from the consumers' point of view, thus making them more demanding and particular about the product attributes they seek. The marketer can use the findings to plan which product attributes are most sought in different categories and can accordingly incorporate these into his product, and thus stimulate its sales.

The awareness level shows how much are the buyers informed about the alternative brands sold throughout the country. The marketer can use the findings to plan commercial communication and stimulate favorable word of mouth. The awareness helps the consumer evaluate the alternatives. Most of the researchers believe that consumers form the brand judgment largely on a conscious and rational basis. By studying the form of evaluations of the target market, the marketer can gain useful guidance to make his brand salient to consumers.

This brief analysis of consumer behavior, covering only a few points from here and there does not fully diagnose the black box of the consumer. But it is expected to help the marketer adjust his marketing decisions to suit the consumer preferences.

Performance Level of Herbal Drug Industry

Tables 1 to 4 show performance level of selected herbal drug manufactures. Tables 1 and 3 clearly indicate that a number of companies have done very well who enjoy a high reputation in the market. Company-wise reputation as reported by the consumers and by the doctors (on 1 – 5 scale) is found to be in the following order.

S. No.	Companies Name	Ranking by Consumers		Ranking by Doctors	
		Co-eff.	Rank	Co-eff.	Rank
1.	Himalaya Drug Co.	4.26	1	4.31	1
2.	Hamdard Waqf Lab.	4.18	2	3.84	2
3.	Dabur India Ltd.	3.93	3	3.37	3
4.	Dawakhana Tibbiya College	3.53	4	3.03	4
5.	Shree Baidnath Ayur Ltd.	3.31	5.	2.07	6
6.	Rex Remedies	3.12	6	2.35	5
7.	Made by Vaids/ Hakims	3.05	7	-	-
8.	Self Made	2.98	8	2.26	7
9.	Local Manufactures	1.96	9	1.17	8

City/ Region-wise, people have a high rating for three companies i.e. 'Himalaya Drug Company' is the highest in performance followed by 'Hamdard Wakf Lab.' and 'Dabur India Ltd.' in eastern region, while Hamdard has highest performance followed by 'Himalaya Drug Co.' & 'Dabur India Ltd.' in the north region (sec. Table 1). Dabur has been given the same rating in all the regions and all the cities by the consumers.

'Shree Baidnath Ayur Ltd.' has the best performance in the east region but in the north region it has eighth rank among the selected companies (see Table. 1), while 'Rex Remedies' has fifth position in north region and seventh position in the east region. Both these companies have a fluctuation in their performance possibly because the promotional effort varies region-wise.

Table-3 Indicates that the doctors also rated 'Himalaya Drug Company' at highest performance level and local manufacturing companies of herbal medicine at lowest level. Region-wise rating by the doctors is more or less similar among all the cities/ zones (see Table 3).

Table 2 presents the respondents profession-wise reporting of the performance level of herbal drug manufacturers. There is almost similar rating by the professions, only a variation can be seen where servicemen & pensioners have accorded 'self made' fifth position and others have given it eighth position out of the entire selected herbal drug manufacturers.

Table-4 reveals the performance level of herbal drugs manufactures as perceived by the doctors practicing different systems of medicines. They reported that 'Himalaya Drugs Company' has highest performance among the entire range of manufacturers. 'Herbal practitioners' show their second highest preference for 'self made' followed by 'Hamdard Wakf Lab.', 'Dabur India Ltd.' 'Dawakhan Tibbya College' and 'Rex Remedies', etc. while modern medicine practitioners give second position to 'Dabour India Ltd.' followed by 'Hamdard Wakf Lab.', 'Rex Remedies' & 'Dawakahna Tibbya College'. 'Self made' has been given second last position by them.

On the whole performance level of herbal drugs manufacturers varies among the doctors practicing different medicinal systems (see Table 4).

From the above analysis (Table 1 – 4) it appears that these companies have earned a high market reputation by their persistent efforts. The others should also take a lesson and strive hard by standardizing the formulations and meeting the safety, quality, integrity and authenticity norms, laid down by the market leaders.

The existing leaders need to maintain and enhance this reputation by their continued commitment to the pursuit of public health.

Ho13: The performance level of different herbal drug manufacturers varies in different regions as perceived by the consumers and by the doctors.

This hypothesis appears to be true as evident from Table 1 and 3.

Ho14: The performance level of different herbal drug manufacturers is differently perceived by the doctors practicing different medicinal system.

The variation among the practitioners practicing alternative medicine can be seen in table 4 and therefore the null hypothesis will be accepted.

Forms, Packaging and Sizes of Herbal Drugs

Table-5 shows that in East zone 50% doctors feel the need for producing the herbal drug in all forms and sizes as 'preferable' followed by 'may be done' (24%) and 'essential' (20%).

Only 6% of doctors of East zone have not desired it. Similar trend appears to be in the north zone. The 'preferable' level of need for producing it in all forms and sizes is high (64%), 24% doctors have 'essential' level, and only 2% doctors expressed that there is 'no need' for producing it in all forms and sizes.

It is interesting to note that small cities' doctors have felt the need for producing the herbal drugs in all forms and sizes higher than the big cities' doctors (see Table 5). The people in small cities are made-up of more divergent socio-economic strata and therefore they wish to purchase herbal drugs in different forms and sizes.

According to Table 6, doctors practicing different medicinal systems have almost similar preferences for producing the herbal drugs in all forms and sizes. 38.29% doctors practicing both medicines expressed the need for producing it as 'essential', while 28% 'herbal practitioners' feel the essential need for producing herbal drugs in all forms and sizes.

On the whole majority of doctors are in the favour of producing herbal drugs in all forms and sizes, only 4% doctors reported that producing in all forms and sizes is not 'desired' (see Table 5). From the above analysis (Table 5 and 6) it is observed that manufacturers of herbal drugs should make it possible to offer their products in all forms and sizes because the majority of Indian people belong to lower income groups who look for the forms and sizes of herbal medicine which suit their budget.

Ho15: A substantial portion of doctors feel the need for producing the herbal drugs in all forms and sizes.

Calculated value of Chi-square for cities is χ^2 = 18.471 (df =9) and for the zones is χ^2 = 4.924 (df = 3).

Ho16: The need for producing herbal drugs in all forms and sizes is felt differently by the doctors practicing different medicinal systems.

Calculated value of χ^2 = 4.948 (df =6). Therefore the test shows that the hypothesis is rejected.

Product forms Preferences

As Table 7 indicates, more than half of the consumers prefer the herbal medicines in 'tablet/ capsule' form. Rest of them prefer in the form of 'syrup/ sherbet' (25.5%) followed by 'paste' (16%) and 'powder' forms (10.5%). 'Tablets and capsules' are most preferable forms in all the cities / zones. 'Syrup and sherbet' is the second preferable form of herbal drugs in the small cities (Aligarh and Sitamarhi), while 'paste' form is the second choice of consumers in Delhi (see Table 7).

According to Table 8, income-wise preferences show that majority of income groups have first choice for 'tablets and capsules'. But second, third and fourth choice varies in forms among the different income groups.

This implies that the sellers/ processors should try to present their products in all the preferred forms especially in 'tablets/ capsules' and 'syrup/ sherbet' forms, which are popular choice of consumers.

Product Package Preferences

As Table 7 indicates, only 2% of the sampled population prefers the herbal medicine in loose form. The consumers' most preferable packages are in this order: pouches/ strips, glass jars and plastic jars. Region-wise

differences can be seen in Table 7. People in eastern zone reported that 'plastic jar' is highly preferable, while it is in third order of choice in north zone.

Table 8 shows the income-wise preferences for different packaging types. It is indicated that all income groups have first preference for 'pouches/ strips' packing of herbal medicine except the income group of 'Rs. 3000 – 5999', which has second choice for it. It is interesting to note that in the income groups of '3000 – 5999' and 'above 12000' none of the consumers prefers the herbal medicinal in loose form while other income groups have less than 5% of their choice in loose supply of herbal medicine (see Table 8).

This implies that the sellers/ processors should try to present their products in alternative packages to satisfy the individual needs of different segments of users. For the busy and mobile people the pouches should be offered for providing convenience. Unbranded loose supply should be avoided, as it is less acceptable by the people.

Package Size Preferences

As Table 7 indicates, more than 50% consumers prefer to buy the herbal medicine in small sizes in all the cities except in big city (Delhi) as it has only 42% of consumers' choice to by it in small size.

It is observed from Table 7 that in all the regions/ cities consumers have preferred packaging sizes in this order; 'small size', 'full dose pack', 'single dose pack' and 'large family pack' except in Sitamarhi where people have their first choice for 'small size pack' followed by 'single dose pack', 'full dose pack' and 'large family pack'. This variation is due to the less development state of this city as the per capita income of the people here is very less than other cities which are taken in the study.

Package size preferences, the incomes group-wise (see Table 8) are as follows:

Single Dose: most preferred by middle and lower middle income groups.

Small Size: most preferred by middle, lower middle and upper middle income groups.

Full Dose Pack: most preferred by upper middle and high income groups

Large Family Pack: least preferred by all income groups except lower income group.

This implies that the sellers/ processors should pack their products in all common sizes to satisfy different income groups among the users. For the economically poor people single dose pouches should also be offered for the reason of affordability. Small packs also appear to be more popular and acceptable in most of the segments.

Ho17: Some forms, packaging types and sizes of herbal medicine are more preferred than others by the consumers of different regions.

For forms of medicine $\chi^2 = 8.480$ (df = 9) city-wise

$\chi^2 = 5.191$ (df = 3) zone-wise

For packing types $\chi^2 = 12.184$ (df = 9) city-wise

$\chi^2 = 4.439$ (df = 3) zone-wise

For packing sizes $\chi^2 = 8.274$ (df = 9) city-wise

$\chi^2 = 1.926$ (df = 3) zone-wise

Therefore the null hypothesis is rejected.

Ho18: Some forms, packaging types and sizes of herbal medicines are more preferred than others by the consumers of different income groups.

For forms of medicine χ^2 = 13.323 (df = 12)
For packaging type χ^2 = 12.223 (df = 12)
For packaging sizes χ^2 = 25.067 (df = 12)

Therefore the null hypothesis 18 (Ho18) for forms of medicines and packaging types, it is rejected. But for the packaging sizes it is accepted. The hypothesis is partially true.

Product attributes

Tables 9 to 12 indicate the characteristics of herbal medicines more desired. Table 9 and 11 clearly show the more desired characteristics by the consumers and by the doctors. The most preferable characteristics of herbal medicine on 1 – 5 scale are indicated below:

S. No.	Product Attributes	Rating by Consumers		Rating by Doctors	
		Co-eff.	Rank	Co-eff.	Rank
1.	Proper Prescription	3.01	4	3.62	2
2.	Effective Formula	3.66	1	3.72	1
3.	Ingredients	3.56	2	3.72	1
4.	Nutritional Value	3.09	3	2.79	3
5.	Taste and Flavour	1.96	6	1.54	6
6.	Usage & Storage Convenience	2.23	5	1.56	5
7.	Form of Medicine	1.77	7	1.70	4
8.	Packaging	1.25	8	1.50	7

r_s = 0.796 among the two set of ranks

City-wise all the cities' people have reported the characteristics of herbal medicines more desired and identified 'effective formula' of herbal medicine as the top order preference and 'ingredients' as the second most important factor (see Table 9). The east zone people have given third position to 'proper prescription' and fourth rank to 'nutritional value', while north zone

people reported 'nutritional value' in the third rank and 'proper prescription' on fourth position. It is interesting to note that consumers of Aligarh city point out that 'form of medicine' is their fourth choice among these attributes.

According to Table 11, doctors of east zone expressed that 'effective formula' of herbal medicines is the most desired characteristic followed by 'proper prescription', 'ingredients' and 'nutritional value'. But North zone doctors reported that the most desired characteristics are: 'ingredients', 'effective formula', 'proper prescription' and 'nutritional value', (see Table 11). It implies that herbal manufacturers should give more attention to the product attributes which are more desired by the consumers and doctors especially the ingredients should be standard ones and the formula should be effective for the ailments. Proper prescription is also an important characteristic of herbal treatment. Suitable prescription will be instrumental for curing the ailments within the limited time.

Ho19: Some attributes of herbal medicine are more desired than the others by the consumers and by the doctors of different regions.

Therefore, as is visible in Tables 9 and 11, the null hypothesis will be accepted.
The value of $r_s = 0.796$ indicates that the relationship between the consumers & doctors attitude towards characteristics of herbal medicine more desired is highly positive.

Profession-wise differences are indicated in Table 10. Effective formula and ingredients are most desired characteristics of herbal medicine by the servicemen, businessmen, self-employed and students but housewives have 'proper prescription' as the top desired characteristic of herbal medicine. It is interesting to note that pensioners reported that 'nutritional value' was the most desired characteristic of herbal medicine.

It has been observed in Table 12 that herbal medicines practitioners expressed the most desired characteristics of herbal medicine as 'effective formula' and 'proper prescription', while 'modern medicines practitioners' and

'practitioners practicing both' feel more desired characteristics of this medicine as 'ingredients' and 'effective formula'.

The above results show clearly that some attributes of herbal medicines are more desirable than the others by the consumers of different professions and by the doctors practicing different medicinal systems. (See Tables 10 and 12)
Therefore, the null hypothesis (Ho20) seems to be true.

Difficulty Level in Herbal Medicines

It is often said "herbal medicines are good to cure but its old techniques and its typical forms make it difficult to use it". Table 15 shows the difficulty level as felt by the doctors of different segments.

In north zone the doctors feel difficulty level of higher order (24%) in using typical forms and methods of herbal medicine in comparison to the doctors of eastern zone (8%). While in both the zones consumers feel the difficulty in using the typical forms and methods of herbal medicines of a similar order. There is no significant difference region-wise (see Table 13).

It can also be noticed in Table 14 that the difficulty in using the traditional forms and methods of herbal medicines is expressed by the consumers of all professions and this response is highest among the students and pensioners who felt the difficulty level of highest order. 'No difficulty' was felt only by the consumers in this order: servicemen (52.50%), house wives (42.86%), self employed (40%) and businessmen (35%) in using the typical forms & methods of herbal medicines (see Table 15).

According to Table 16 higher difficulties were felt in using the typical forms and methods of herbal medicines by the 'modern medicines practitioners' in comparison to 'practitioners of herbal medicines'. But majority of doctors feel it only moderately difficult. Second frequent reply goes to 'no difficulty' as felt by them in using the typical forms and methods of herbal medicines, as evident in Table 16.

On the whole majority of consumers and doctors feel difficulty in using the herbal medicines due to the conventional forms & old methods of preparation. So the processors should try to produce their products by latest technology and for the busy and mobile kinds of consumers it should be acceptable and convenient to use.

Ho21: The difficulty level in using the typical forms and methods of herbal medicines is felt differently by the consumers and by the doctors of different regions.

χ^2 = 7.940 (df =6) for consumers city-wise, χ^2 = 0.145 (df =2) for consumers zone-wise, χ^2 = 19.521 (df =6) for doctors city-wise and χ^2= 13.490 (df =2) for doctors zone-wise. The test shows that there is no significant difference across cities/ zones among the consumers, while there is a significant difference across cities/ zones among the doctors. The hypothesis is therefore partly true.

Ho22: The difficulty level in using the typical forms and methods of herbal medicines is felt differently by the consumers of different professions and by the doctors of different medicinal systems.

Chi-square test for consumers of different professions results in χ^2 = 8.394 (df = 10) and for doctors of different medicinal systems it is χ^2 = 2.899 (df =4).

There is no significant difference across different professions and different medicinal systems, therefore the hypothesis will be rejected.

Table 1: Performance Level of Herbal Drugs Manufacturers as Perceived by the Consumers

Company Name		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Himalaya Drugs Co.	Rating Score	196	160	356	198	192	390	746
	Coeff.	4.36	4.32	4.34	4.21	4.17	4.19	4.26
Hamdard (wakf) Lab.	Rating Score	196	202	398	213	192	405	803
	Coeff.	4.08	4.21	4.15	4.26	4.17	4.22	4.18
Dawakhana Tibbiya College	Rating Score	108	130	238	113	206	319	557
	Coeff.	3.00	3.42	3.21	3.23	4.20	3.72	3.53
Dabur India Ltd.	Rating Score	181	199	380	177	201	378	758
	Coeff.	3.93	4.06	4.00	3.69	4.02	3.85	3.93
Rex Remedies	Rating Score	89	91	180	159	110	269	449
	Coeff.	2.87	3.03	2.95	3.46	2.97	3.21	3.12
Shree Baidyanath Ayur Ltd.	Rating Score	148	180	328	124	127	251	579
	Coeff.	3.44	3.67	3.56	3.02	3.02	3.02	3.31
Local Manufacturers	Rating Score	94	106	200	81	80	161	361
	Coeff.	2.04	2.26	2.15	1.84	1.70	1.77	1.96
Made by Vaids/ Hakims	Rating Score	152	141	293	148	136	284	577
	Coeff.	3.17	2.94	3.05	3.02	3.09	3.06	3.05
Self Made	Rating Score	138	146	284	160	141	301	585
	Coeff.	2.76	3.04	2.90	3.20	2.94	3.07	2.98

Table 2: Performance Level of Herbal Drugs Manufacturers by the Profession of the Consumers

Company Name		Profession						
		Service	Business	Self employed	Student	House Wife	Pensioner	Total
Himalaya Drugs Co.	Score	148	152	137	198	94	17	746
	Coeff.	4.23	4.22	4.03	4.40	4.48	4.25	4.26
Hamdard (wakf) Lab.	Score	175	154	154	206	98	16	803
	Coeff.	4.38	4.05	4.05	4.29	4.08	4.00	4.18
Dawakhana Tibbiya College	Score	114	110	113	150	59	11	557
	Coeff.	3.56	3.44	3.53	3.57	3.47	3.67	3.53
Dabur India Ltd.	Score	148	155	150	176	114	15	758
	Coeff.	3.70	4.08	3.85	3.91	4.22	3.75	3.93
Rex Remedies	Score	72	95	96	136	41	9	449
	Coeff.	2.67	3.17	3.43	3.16	3.15	3.00	3.12
Shree Baidyanath Ayur Ltd.	Score	127	124	107	137	74	10	579
	Coeff.	3.34	3.35	3.34	3.26	3.36	2.50	3.31
Local Manufacturers	Score	71	63	74	90	56	7	361
	Coeff.	1.97	1.80	1.90	2.09	2.07	1.75	1.96
Made by Vaids /Hakims	Score	110	116	116	147	77	11	577
	Coeff.	2.97	3.14	2.97	3.13	3.08	2.75	3.05
Self Made	Score	127	118	113	132	83	12	585
	Coeff.	3.34	3.03	2.90	2.75	2.96	3.00	2.98

Table 3: Performance Level of Herbal Drugs Manufacturers as Perceived by the Doctors

Company		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Himalaya Drugs Co.	Score	103	111	214	104	104	208	422
	Coeff.	4.48	4.44	4.46	4.16	4.16	4.16	4.31
Hamdard Wakf Lab.	Score	75	106	181	95	100	195	376
	Coeff.	3.26	4.24	3.77	3.80	4.00	3.90	3.84
Dawakhana Tibbiya College	Score	55	94	149	61	90	151	300
	Coeff.	2.89	3.76	3.39	3.05	3.60	3.36	3.37
Dabur India Ltd.	Score	71	68	139	76	67	143	282
	Coeff.	3.09	2.83	2.96	3.17	3.05	3.11	3.03
Rex Remidies	Score	26	45	71	60	52	112	183
	Coeff.	2.00	2.14	2.09	2.73	2.36	2.55	2.35
Shree Baidyanath Ayur Ltd.	Score	62	39	101	44	41	85	186
	Coeff.	2.70	1.70	2.20	1.83	2.05	1.93	2.07
Local Manufacturers	Score	37	26	63	17	28	45	108
	Coeff.	1.61	1.08	1.34	0.68	1.40	1.00	1.17
Self Made	Score	68	52	120	48	47	95	215
	Coeff.	2.72	2.17	2.45	2.00	2.14	2.07	2.26

Table 4: Performance Level of Herbal Drugs Manufacturers as Perceived by the Doctors Practicing Different Medicines

Company Name	Mode of Practice						Total	
	H.P		M.P		P.B			
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Himalaya Drugs Co.	100	4.35	241	4.16	81	4.76	422	4.31
Hamdard Wakf Lab.	91	3.96	211	3.64	74	4.35	376	3.84
Dawakhana Tibbiya College	86	3.74	145	2.96	69	4.06	300	3.37
Dabur India Ltd.	83	3.95	221	4.02	71	4.18	375	4.03
Rex Remidies	82	3.73	119	2.98	60	3.75	261	3.35
Shree Baidyanath Ayur Ltd.	72	3.27	147	2.83	57	3.56	276	3.07
Local Manufacturers	57	2.59	110	2.04	33	2.06	200	2.17
Self Made	105	4.20	139	2.57	66	4.13	310	3.26

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 5: The Need for Producing the Herbal Drugs in all Forms and Sizes as expressed by the Doctors

Kind of Need		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Not Desired	Responses	1	2	3		1	1	4
	%	4.00	8.00	6.00		4.00	2.00	4.00
May be Done	Responses	10	2	12	4	1	5	17
	%	40.00	8.00	24.00	16.00	4.00	10.00	17.00
Preferable	Responses	10	15	25	13	19	32	57
	%	40.00	60.00	50.00	52.00	76.00	64.00	57.00
Essential	Responses	4	6	10	8	4	12	22
	%	16.00	24.00	20.00	32.00	16.00	24.00	22.00
Total	Responses	25	25	50	25	25	50	100
	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 6: The Need for Producing the Herbal Drugs in all Forms and Sizes as expressed by the Doctors Practicing Different Medicines

Kind of Need	Mode of Practice							
	H.P		M.P		P.B		Total	
	Responses	%	Responses	%	Responses	%	Responses	%
Not Desired	1	4.00	3	5.17			4	4.00
May be Done	3	12.00	12	20.69	2	11.76	17	17.00
Preferable	14	56.00	34	58.62	9	52.94	57	57.00
Essential	7	28.00	9	15.52	6	35.29	22	22.00
Total	25	100.00	58	100.00	17	100.00	100	100.00

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 7: Consumer Preferences for Different Forms, Packing Types and Sizes of Herbal Medicines

Preferences		City/ Zone													
		Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Forms of Medicines	Tablets/ capsules	25	50	27	54	52	52	26	52	26	52	52	52	104	52
	Paste Form	7	14	6	12	13	13	11	22	8	16	19	19	32	16
	Syrup/ Sharbet	9	18	11	22	20	20	9	18	14	28	23	23	43	21.5
	Powder	9	18	6	12	15	15	4	8	2	4	6	6	21	10.5
	Total	50	100	50	100	100	100	50	100	50	100	100	100	200	100
Packaging Types	Loose Supply		0	2	4	2	2		0	2	4	2	2	4	2
	Plastic Jars	16	32	18	36	34	34	13	26	10	20	23	23	57	28.5
	Pouches/ Strips	15	30	16	32	31	31	25	50	19	38	44	44	75	37.5
	Glass Jars	19	38	14	28	33	33	12	24	19	38	31	31	64	32
	Total	50	100	50	100	100	100	50	100	50	100	100	100	200	100
Packaging Sizes	Single Dose Pack	7	14	11	22	18	18	13	26	8	16	21	21	39	19.5
	Small Size	25	50	30	60	55	55	21	42	27	54	48	48	103	51.5
	Full Dose Pack	15	30	7	14	22	22	14	28	14	28	28	28	50	25
	Large Family Pack	3	6	2	4	5	5	2	4	1	2	3	3	8	4
	Total	50	100	50	100	100	100	50	100	50	100	100	100	200	100

Table 8: Respondents Preferences for Different Forms, Packing Types and Sizes of Herbal Medicines by Income Groups of Consumers

Preferences		Monthly Family Incomes											
		Below 3000		3000-5999		6000-8999		9000-11999		Above. 12000		Total	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Forms of medicines	Tablets/ capsules	7	41.18	25	49.02	23	51.11	18	50.00	31	60.78	104	52.00
	Paste form	5	29.41	8	15.69	9	20.00	3	8.33	7	13.73	32	16.00
	Syrup/ sherbet	2	11.76	13	25.49	7	15.56	9	25.00	12	23.53	43	21.50
	Powder	3	17.65	5	9.80	6	13.33	6	16.67	1	1.96	21	10.50
	Total	17	100.00	51	100.00	45	100.00	36	100.00	51	100.00	200	100.00
Packaging types	Loose supply	1	5.88		0.00	1	2.22	2	5.56		0.00	4	2.00
	Plastic Jars	7	41.18	13	25.49	15	33.33	10	27.78	12	23.53	57	28.50
	Pouches/Strips	7	41.18	18	35.29	18	40.00	12	33.33	20	39.22	75	37.50
	Glass jars	2	11.76	20	39.22	11	24.44	12	33.33	19	37.25	64	32.00
	Total	17	100.00	51	100.00	45	100.00	36	100.00	51	100.00	200	100.00
Packaging sizes	Single dose pack	6	35.29	12	23.53	11	24.44	1	2.78	9	17.65	39	19.50
	Small size	7	41.18	30	58.82	27	60.00	18	50.00	21	41.18	103	51.50
	Full dose pack	4	23.53	7	13.73	5	11.11	15	41.67	19	37.25	50	25.00
	Large family pack		0.00	2	3.92	2	4.44	2	5.56	2	3.92	8	4.00
	Total	17	100.00	51	100.00	45	100.00	36	100.00	51	100.00	200	100.00

Table 9: Characteristic of Herbal Medicines more Desired by the Consumers

Characteristics of Herbal Medicines		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Proper Prescription	Score	153	157	310	145	117	262	572
	Coeff.	3.26	3.20	3.23	3.02	2.54	2.79	3.01
Effect in Formula	Score	195	178	373	175	174	349	722
	Coeff.	3.90	3.71	3.81	3.50	3.55	3.53	3.66
Ingredients	Score	164	181	345	162	151	313	658
	Coeff.	3.64	3.69	3.67	3.38	3.51	3.44	3.56
Nutritional Value	Score	138	141	279	166	160	326	605
	Coeff.	2.88	2.82	2.85	3.32	3.33	3.33	3.09
Taste and Flavour	Score	45	76	121	66	84	150	271
	Coeff.	1.61	1.69	1.66	2.28	2.33	2.31	1.96
Uses and Storage Convenience	Score	30	13	43	10	45	55	98
	Coeff.	2.14	2.17	2.15	1.67	2.50	2.29	2.23
Form of Medicines	Score	15	4	19	7	13	20	39
	Coeff.	1.50	1.33	1.46	1.75	2.60	2.22	1.77
Packaging	Score	10	0	10	19	6	25	35
	Coeff.	1.25		1.25	1.27	1.20	1.25	1.25

Table 10: Characteristic of Herbal Medicines more Desired by the Consumers of Different Profession

Characteristics of Herbal Medicines		Profession						
		Service	Business	Self Employed	Student	Housewife	Pensioner	Total
Proper Prescription	Score	108	108	108	142	99	7	572
	Coeff.	2.84	2.84	3.00	2.96	3.67	2.33	3.01
Effect in Formula	Score	147	148	138	179	98	12	722
	Coeff.	3.77	3.70	3.45	3.81	3.63	3.00	3.66
Ingredients	Score	129	146	136	148	85	14	658
	Coeff.	3.58	3.65	3.58	3.52	3.40	3.50	3.56
Nutritional Value	Score	114	112	127	165	71	16	605
	Coeff.	2.92	3.03	3.26	3.37	2.54	4.00	3.09
Taste and Flavour	Score	56	46	58	53	49	9	271
	Coeff.	2.24	1.70	2.07	1.61	2.23	3.00	1.96
Uses and Storage Convenience	Score	27	21	21	21	7	1	98
	Coeff.	2.25	3.00	2.33	1.91	1.75	1.00	2.23
Form of Medicines	Score	11	13	3	4	8	0	39
	Coeff.	1.83	2.60	1.00	1.33	1.60		1.77
Packaging	Score	8	6	9	8	3	1	35
	Coeff.	1.60	1.00	1.29	1.14	1.50	1.00	1.25

Table 11: Characteristics of Herbal Medicines more Desired by the Doctors

Characteristics of Herbal Medicines		City/ Zone						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Proper Prescription	Score	95	88	183	96	37	133	362
	Coeff.	3.80	3.67	3.73	3.69	1.48	2.61	3.62
Effect in Formula	Score	98	90	188	87	43	130	365
	Coeff.	3.92	3.75	3.84	3.48	1.79	2.65	3.72
Ingredients	Score	88	87	175	77	50	127	350
	Coeff.	3.67	3.63	3.65	3.67	2.00	2.76	3.72
Nutritional Value	Score	46	51	97	73	14	87	218
	Coeff.	2.88	2.55	2.69	3.04	0.78	2.07	2.79
Taste and Flavour	Score	19	16	35	24	0	24	80
	Coeff.	1.58	1.60	1.59	1.60	0.00	0.80	1.54
Uses and Storage Convenience	Score	5	24	29	7	1	8	53
	Coeff.	1.25	1.60	1.53	1.40	0.10	0.53	1.56
Form of Medicines	Score	22	12	34	2	4	6	51
	Coeff.	1.29	2.40	1.55	2.00	0.57	0.75	1.70
Packaging	Score	2	7	9	9	1	10	21
	Coeff.	1.00	2.33	1.80	1.13	1.00	1.11	1.50

Table 12: Characteristic of Herbal Medicines more Desired by the Doctors Practicing Different Medicines

Characteristics of Herbal Medicines	Treatment System							
	H.P		M.P		P.B		Total	
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Proper Prescription	101	3.88	198	3.47	63	3.71	362	3.62
Effective Formula	92	4.00	207	3.57	66	3.88	365	3.72
Ingredients	72	3.27	222	3.83	56	4.00	350	3.72
Nutritional Value	46	2.56	133	3.09	39	2.29	218	2.79
Taste and Flavour	18	1.80	44	1.47	18	1.50	80	1.54
Use and Storage Convenience	18	1.80	33	1.50	2	1.00	53	1.56
Form of Medicines	19	1.73	26	1.63	6	2.00	51	1.70
Packaging	9	1.80	7	1.17	5	1.67	21	1.50

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 13: The Difficulty Level in Using the Typical Forms and Methods of Herbal Medicines as Reported by the Consumers

Difficulty Level	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	7	14	9	18	16	16	8	16	7	14	15	15	31	15.5
Moderate	17	34	28	56	45	45	24	48	21	42	45	45	90	45
Nil	26	52	13	26	39	39	18	36	22	44	40	40	79	39.5
Total	50	100	50	100	100	100	50	100	50	100	100	100	200	100

Table 14: Difficulty Level in Using the Typical Forms and Methods of Herbal Medicines as Reported by Consumers of Different Professions

Difficulty Level	Profession													
	Service		Business		Self Employed		Student		Housewife		Pensioner		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	5	12.50	7	17.50	9	22.50	6	12.50	3	10.71	1	25.00	31	15.50
Moderate	14	35.00	19	47.50	15	37.50	27	56.25	13	46.43	2	50.00	90	45.00
Nil	21	52.50	14	35.00	16	40.00	15	31.25	12	42.86	1	25.00	79	39.50
Total	40	100.00	40	100.00	40	100.00	48	100.00	28	100.00	4	100.00	200	100.00

Table 15: The Difficulty Level in Using the Typical Forms and Methods of Herbal Medicines as Reported by the Doctors

Difficulty Level	City/Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High		0.00	4	16.00	4	8.00	7	28.00	5	20.00	12	24.00	16	16.00
Moderate	13	52.00	15	60.00	28	56.00	16	64.00	18	72.00	34	68.00	62	62.00
Nil	12	48.00	6	24.00	18	36.00	2	8.00	2	8.00	4	8.00	22	22.00
Total	25	100.00	25	100.00	50	100.00	25	100.00	25	100.00	50	100.00	100	100.00

Table 16: Difficulty Level in Using the Typical Forms and Methods of Herbal Medicines as Reported by the Doctors Practicing Different Medicines

Difficulty Level	Mode of Practice							
	H.P		M.P		P.B		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	2	8.00	12	20.69	2	11.76	16	16.00
Moderate	17	68.00	35	60.34	10	58.82	62	62.00
Nil	6	24.00	11	18.97	5	29.41	22	22.00
Total	25	100.00	58	100.00	17	100.00	100	100.00

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

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CHAPTER - 8

PROMOTION AND INFORMATION

PROMOTION AND INFORMATION

Promotion is a key element in marketing strategy. The first step in marketing is fitting the product and its features to market needs and preferences. The second is availability of the product in the market through distribution. Successful promotion is the third essential ingredient in overall marketing strategy. The prospective buyers must be informed about the product, distinctive wants' satisfying characteristics and its availability while maintaining link with target market segments. These are the key tasks that are associated with promotion.

The American Marketing Association defines promotion as "the personal or impersonal process of assisting and/or persuading a prospective customer to buy a commodity or a service or to act favorably upon an idea that has commercial significance to the seller". [1]

While describing the importance of promotion in the modern marketing system, Stanton points out that "basically, promotion is an exercise in information, presentation and influence" [2]. These three terms are linked with each other in the sense that to inform is to persuade and conversely, if a person is being persuaded, he is probably also being informed and influenced.

In this context Prof. Neil Borden says that "the use of influence in commercial relations is one of the attributes of a free society, just as persuasion and counter persuasions are exercised freely in many walks of life in our free society in the home, in the press, in the class room, in the courts in the political forum, in legislative halls and in government agencies for information". [3]

Promotion is basically meant for communication. The communication of the product and its distinctive need satisfying characteristics, the company as a whole, its nature and business, the targeted customers, the place where the product may be available and the price which a company charges for the

product, constitutes promotion. Promotion is different from sales promotion. The later is only part of the former. It is different from advertising and publicity too.

Promotion is the process of marketing a communication system to improve the image of the company among the various groups of the society. It communicates the knowledge about company, its product, activity, prices and policies. In the marketing terms it aims at conveying to the consumers a message about three elements of the marketing mix, viz. product (including the products distinctive wants satisfying features), place (the availability of the product) and price at which the product is offered.

The manufacturers have got at their disposal a very wide range of promotional methods. Some of the important ones include personal selling, advertising, 'point of purchase display', direct mailing and packaging. [4]

Most of the promotional companies involve a combination of two or more of such methods. The factors that affect the optimum level of promotional strategy are the product, the market, the stage of demand and the relative cost.

All the business organizations give special emphasis to the sales promotion department. In some business houses it is attached to the marketing division, while in others it functions as a separate department. For instance, in pharmaceutical industry almost every leading firm has a separate sales promotion department.

Promotional Policy

Promotional policy is meant to create awareness in the minds of targeted customers about a company and its products with the objective of increasing sales. This is the most vital area of marketing in drug industry. A drug company cannot afford to ignore promotional activities in a comparative business environment. The most widely used promotional methods for small

companies are personal selling and sales incentive techniques, while the role of advertising in this industry is mostly of the nature of public relations.

Promotion in Herbal Pharmaceuticals

Herbal drug industry has the following two types of products, their promotional strategies may also be different from each other. They are as under:

1. Ethical products
2. Non-Ethical products

Promotional Strategy for Ethical Products

Ethical products are those for which the doctor's advice is required and without the recommendation of the doctor they are not to be purchased. In principle retailers should not sell such drugs without the prescription of registered medical practitioners. These are included in pharmacopeia of Indian system of medicine. Sales promotional strategy adopted for such products is different from that of non-Ethical products. It is heavily relied on personnel contacts and interaction of sales representatives/ medical representative with doctors and hospital staff. Sample of drugs (containing the original product, but in small quantity) are given to medical representatives to distribute them among the doctors so that they can try them on their patients.

Promotional Strategy for Non-Ethical Products

Sale promotion strategy for non-ethical products is identical with that of any such products for which the prescription of the doctors is not required. These products are generally advertised freely. The techniques of sales promotion are adopted either at the level of the retailer or at the level of the stockist.

Such products are generally promoted through advertising in several ways such as.

a) Advertising through the press
b) Advertising through Radio and T.V. (Electronic media)
c) Window display at the shop
d) Hoardings at busy and crowded places
e) Exhibitions & stalls

Sales promotion strategy for non-ethical products is very similar to that of consumer goods.

Promotion Function

The following aspects have been covered in the study relating to the promotion function.

- Knowledge sources for herbal medicines
- Effectiveness of advertising media for herbal medicines
- Attitude towards different sales promotion tools
- Attitude of doctors towards new herbal products
- Major steps required for herbal medicines' promotion

Promotion function is mainly communicational in nature and consists of the different measures like advertising, sales promotion, personal selling, publicity, incentive tools etc. In today's post-liberalization era, when the market is cluttered with so many brands and product variants in each product category it's ultimately the 'sales' that matters at the end of the day for each company.

In order to achieve its objectives, not only a quality product needs to be in offing, but also to promote it in a direction, specific to the target market is the need of the hour. Effective 'promotion' of a product/brand is a must to survive amidst the cut-throat competition in this era. Owing to the nature of the products, promotions hold a distinct significance all the more. With the fast changing market scenario, one must always be on toes to keep up to the pace.

We need the answers to a few questions. What are the changing perceptions of the consumers? How effectively is the message reaching the consumers and from what sources? What remains the task of communication program ahead? What message and media suits a particular area/consumer class etc?

In establishing the clear-cut promotional objectives, setting its budget and developing an effective promotional mix, the planner is guided by the type of product, the tasks ahead, the stage of product life cycle and the economic outlook, as Kotler [5] summarizes the whole communication theory. Care should also be taken that there may not be too much discrepancy between the claims and the offers. Tall claims not supported by the high quality will eventually worsen the image of the brand.

To plan the promotional effort, the foremost thing is to know the source of knowledge of the customers about the brands of different products. This will show how far the promotional effort is going to be effective, as the share of various promotional methods will come to light. These sources of knowledge constitute reference groups, mass media, hoardings & posters and retailers. Out of the various promotional tools, we concentrate on only two of them, namely- advertising and sales promotion, which seem to be more relevant to the product categories taken in the study.

The communicator's task is to research the impact of the previous advertising effort so far made. This determines how much of the task is left and what should be the objective of the proposed plan. The sample respondents have been enquired about advertisements of different herbal products reached to them. This also highlights the differences in the advertising efforts made by the different producers.

Media selection is the next important issue and needs to be treated differently in different area types. The media planner has to review each major media type for its relevance for the target audience. The media types vary in their reach, frequency, cost and impact values as Greenberg [6] points out. The selected sample respondents have also been enquired about the media

mix through which the message of different products has reached to them. This shows the advertising media usage in different areas in respect of the message successfully reached. This may form a basis of media selection decision.

Sales promotion comprises a wide variety of short-term incentives to stimulate the early and increased sales. High rates of inflation have caused a number of such tactics being aggressively used to motivate the customers. Brown [7] says that sales promotion yields faster responses in sales than advertising, though this does not tend to yield new, long-term buyers in mature markets because this attracts mainly deal-prone consumers who switch over among brands as deal becomes available.

Price discounts and free gifts are two such methods being commonly used in India, with others like prizes, contests, surprise items, coupons also being offered to the fancied consumers. With the competition building up, offers like 'buy-one-get-one-free' are also in the offing. Therefore, the present study makes an attempt to measure the attitude of different consumer groups regarding various tools. The analysis of this part indicates how far the customers are expected to accelerate their purchases on the availability of these efforts.

Knowledge Source for Herbal Medicines

The knowledge sources of consumers/ doctors that they use to collect information for the Herbal medicines are shown in Tables 1 to 4.

The study shows that people of big cities (Patna & Delhi) have important knowledge source as 'advertisement' that affects the purchase decision of the consumers. While in small cities (Sitamarhi and Aligarh) consumers have confidence in other sources of knowledge for herbal medicine like 'vaids & hakims' and 'old people of the family' (see Table 1).

Table 2 relates the knowledge source with the education level as we notice that it indicates differences among the education levels. All the people reported that 'vaids and hakims' were most important source of knowledge for herbal medicine except the graduates who reported that the important source of knowledge is 'old people of the family'.

It is interesting to note that 'graduates and above graduates' express that 'advertising' is the second important source of information for herbal medicine, while 'matric' and 'below matric' give fourth rank to it among the knowledge sources. It is clear from Table 1 and 2 that the most important sources are 'vaids and hakims' and 'old people of the family' followed by 'advertisement', 'friends & relatives' and 'reading books', which affect the purchase decision of the consumers.

According to World Health Organization report traditional healers (Vaids/ Hakims) treat 80% patients in India, who mostly prescribe herbal medicines. [8]

As observed the graduates of herbal medicine (ayurvedic/ unani medicine) mostly prescribe modern medicine to treat their patients. There is a need that they should stick to prescribe only Unani and Ayurvedic medicines in which they have got their education.

'Retailers' are in the last position and they don't play important role as a source of information. A meager 8.61% respondent takes their advice in arriving at decision for what brand to go for. (Table 1 and 2)

Majority of the doctors have stated that the top three knowledge sources for herbal medicines are 'discussion with other doctors', 'books/ drug periodicals' and marketing representatives i.e. 24.05%, 23.46% and 21.99% respectively. They reported that 'newspaper' and 'T.V./ radio' are least informative sources for herbal medicines for them. The top three knowledge sources are varying with region / city-wise (see Table 3).

Table 4 indicates that 'herbal medicine practitioners' have most important sources of information in this order: _'books/ drug periodicals', 'discussion with other doctors', 'marketing representatives' and 'newspapers and magazines', while other kinds of doctors have their source of knowledge in different order. The sources of information for herbal medicines vary with practitioners of alternative medicinal systems.

It may be concluded from Tables 3 and 4 that there are several sources of knowledge direct as well as indirect. The main sources among them are 'discussion with other doctors' and 'marketing representatives'.

Ho23: There are some distinct knowledge sources for herbal medicines for consumers and for the doctors.

It is evident in Tables 1 and 3. Therefore the hypothesis (Ho23) is accepted.

Ho24: There are different knowledge sources for herbal medicines for the consumers of different educational background and for doctors practicing alternative medicine.

The difference can be seen in Tables 2 and 4 and so the hypothesis (Ho24) is true.

Advertising media for Herbal Medicines

Tables 5 and 6 analyzed the advertising media prevalence as reported by the consumers. 'Newspaper & magazine' is the most effective medium that gives herbal product information to 24.18% of the respondents followed by 'T.V.' (22.75%), 'exhibition' (19.86%), 'radio' (15.16%), 'hoardings, posters & bill boards' (10.87%) and 'display at stores' (7.15%).

It indicates that 'newspaper and magazines' and 'T.V.' are most important tools for promoting the herbal medicines. 'Exhibition' and 'radio' find next important positions. 'Display at stores' has a negligible role in comparison to others promoting tools.

The role of these media varies market segment-wise. 'Radio' is given more importance in the city of Sitamarhi and that is logical too because of the absence of other advertising and publicity means there. And this is less important in other cities (Aligarh, Delhi and Patna) where 'newspapers & magazines' are more effective. The interesting feature is that the areas where 'newspapers & magazines' are more effective advertising media, the role of 'radio' is reduced and the vice- versa. It can be seen that big city of Delhi has 'television' as a more effective source for promoting herbal medicines (see Table 5).

Education-wise no significant differences are visible in Table 6; there is almost a similar trend education-wise also. All educational groups uniformly feel that some advertising media are more effective than others for promoting the herbal medicines (see Table 6).

In this age of media various advertising and publicity tools like television, print media etc. are dominant in the markets. These media have penetrated to lowest level of population and have a wide reach among people of all classes. Thus the marketers utilize these fully to turn consumers' perception in their favour.

These are very handy to target market ones products. For example print media having a well defined clientele is used to target these consumers especially. Thus women magazines, computer magazines, health magazines etc. have advertisements of related products, so that they have very specific reach, making very impressive impact on consumers' mind. Similar is the case of electronic media. This is the reason that air time rate of various T.V. channels are highest during prime hours. Exhibition is also best medium for advertisement of herbal medicines especially in rural areas on mass level. The decision on advertising media mix should be on the basis of the prevalence of various media according its effectiveness region-wise.

Ho25: Some media of advertising are reported to be more effective for herbal medicines by the consumers of different regions.

Table 5 analysis shows that the hypothesis is acceptable.

Ho26: Some media of advertising are reported to be more effective for herbal medicines by the consumers of different educational backgrounds.

This is clearly indicated in Table 6 and therefore it is true.

Promotional Tools for Herbal Medicines

Tables 7, 8 and 9 relate to the promotional tools (free gifts, discounts and extra with products). In all 76.50% customers (including the reply 'no consideration') think favourably for such offers and only 23.50% have an unfavorable attitude towards them. The region-wise analysis (Table 7) shows that east zone cities (Patna and Sitamarhi) have a strongly favourable opinion for promotional tools used for herbal medicines in comparison to north zone cities (Delhi & Aligarh). The difference however does not reduce the prospects of promotional tools used in any region.

The consumer attitude towards free gifts, discounts etc. varies with the monthly family income of the customers. The highest proportion favoring the promotional tools used for herbal medicine is in the income group 'Below 3000' (89.24%), followed by '6000-899' income group (84.49%), '3000 – 5999' income group (80.13%), '9000-11999' income group (64.44%) and 'above 12000' income group (66.67%). (See Table 8)

The 'middle' and 'lower middle' income groups being the most price sensitive groups are favoring the offers of free gifts most and the 'upper middle' income group and 'upper income' group being the least price sensitive groups favour the offers the least.

Table 9 indicates significant differences in consumer attitude towards promotional tools in different age groups. It shows that the proportion of

respondents' attitude varies with age of the consumers. The highest proportion favoring the promotional tools is in 'below 25' age group followed by '25 – 40' age group, 'above 55' age group and '40-55' age group.

It is evident from Table 9 that proportion of respondents favouring the offer decreases with the increasing the age, except 'above 55' age group which is slightly more favorable than it preceding group.

Promotional tools like price discount, free gift and extra with product are expected to normally get a favourable response of the consumers.

Ho27: On the whole a positive impression is drawn by the consumers from promotional tools used for herbal medicines.

On the whole it may be noted that the attitude towards these tools is positively favorable in all the segments, income and the age groups of consumers in spite of the differences in the proportions favoring them. The Chi square test for hypothesis 27 (Ho27) gives values for cities $\chi^2 = 4.45$ (df = 6) and for zones $\chi^2 = 1.696$ (df = 2). (See Table 7) The hypothesis 27 is therefore accepted but there is no significant difference region/ city wise.

Ho28: On the whole a positive impression is drawn by the consumers of different income groups and by the different age groups from promotional tools used for herbal medicines.

Chi square test for hypothesis 28 (Ho28) for income-wise differences is $\chi^2 = 9.610$ (df = 8) and for age-wise differences $\chi^2 = 9.469$ (df = 6), which can be noticed in Tables 8 and 9. The hypothesis 28 is therefore accepted and there is also no significant difference income and age wise.

Doctors' Attitude towards New Herbal Products

Tables 10 and 11 considered the attitude of doctors towards the new herbal products. 47.00% doctors reported that they would consider the 'ingredients' for new herbal products. If ingredients are suitable, natural and pure they will be prescribed to patients. Second important thing that they will

consider will be 'image of the company/ product' followed by 'try once'. 7% doctors reported that they will not prescribe "till it becomes popular', while 1% doctors express that they will 'ignore it' (see Table 10).

Doctors' attitude varies segment-wise. All the segments' doctors said that they would consider ingredients of the new herbal product first, except in Delhi city where doctors reported that they would consider 'image of the company'. On the whole doctors of all segments have almost positively favourable attitude towards new herbal products. While 4% doctors in Patna city are not in favour of new herbal products, as they reported that they would 'ignore' it.

Table 11 gives a very clear indication of the impact of doctors' education on the attitude towards new herbal products. More than 50% doctors of all educational levels expressed that they would consider 'its ingredients' while 'post graduates in modern medicine' expressed that they considered 'image of the company' for any product. 16% of 'graduates in modern medicine' and 9.09% of 'post graduates in modern medicine' were in favour of 'wait till it becomes popular' for new herbal products. While 40% 'graduates in herbal medicine' reported that they would completely ignore them.

The above result shows clearly the overall favorable attitude for new herbal products. It indicates a favourable market with a patronage of all kinds of doctors. Companies should manufacture the quality products and try to maintain a rapport with the doctors of all kinds.

Herbs are by and large beneficial for health but many of them may be dangerous when it is manufactured in single form or in compound form. Therefore it should have laboratory research, animal screening and controlled clinical trials and companies should be conscious about its safety before making it.

Ho29: The attitude of doctors towards newly launched herbal products varies with the region.

Calculated Chi square test City wise (Table 10) gives a value $\chi^2 = 19.037$ (df = 12), city-wise $\chi^2 = 4.991$ (df = 4)
The test shows that the hypothesis is to be rejected.

Ho30: The attitude of doctors towards newly launched herbal products varies with the doctors of different qualifications.

The Chi square test for Table 11 is $\chi^2 = 15.918$ (df = 16). Therefore this hypothesis is also rejected.

Steps Required For Promotion

Tables 12 and 13 present major steps required for promoting herbal medicines as indicated by the doctors on a scale of 1 – 5.

Table 12 indicates that 'clinical research and trials' is top most managerial step required for promoting herbal medicines (4.35) on 1-5 scale. 'Documentation and scientific reports', 'quality standardization', 'advertising in medical journals' and 'sample distribution' are also required as their recommendations on the scale are (3.34), (3.33), (1.93) and (2.02) respectively. The steps required for promoting herbal medicines as recommended by the doctors segment-wise are more or less similar in all the segments (see Table 12).

Differences among the practitioners of different medicinal systems are shown in Table 13 which reveals that all the practitioners of alternative medicine expressed that 'clinical research and trials' was required as a top priority for promoting the herbal medicine. Second important measure is 'quality standardization' as suggested by them, except 'modern medicine practitioners' who are giving second priority to 'documentation and scientific reports'. While other measures are varied among different practitioners (see Table 13).

On the whole the result shows that there are some important actions required for promoting herbal medicines. Companies should try to adopt these actions on priority basis for the promotion of these products. Without taking these steps companies could not increase their sale.

The pharmacopia of Indian traditional medicine needs updating from time to time and development of new methods for maintaining quality control for plant-based drugs. Therefore constant R & D inputs are required for developing newer methods of standardization and quality control. Samples of drugs must be distributed among the doctors, so that they could test them on their patients. The advertisements of products containing its composition, indications, adverse effects, contra indications, doses and prices should be published in different professional journals, which are published by different medical associations and commercial advertisements should be released through international advertising agencies.

Ho31: Major steps required for promoting herbal medicines in the opinion of doctors vary region wise.

Ho32: Major steps required for promoting herbal medicines in the opinion of doctors vary with the practitioners of alternative medicinal systems.

From the analysis of Tables 12 and 13 it can be seen that major actions required for promoting herbal medicines in the opinion of doctors vary with the region and vary also with the practitioners of alternative medicinal systems. Therefore the hypotheses 31 and 32 (Ho31 & Ho32) will be accepted.

Dealers/ Retailers' Recommendations

Tables 14 and 15 indicate recommendations to promote herbal medicines as forwarded by the dealers / retailers on 1 – 5 scale. On the whole, the dealers / retailers are recommending 'motivate doctors to prescribe' as the most potential promotional tool. It is through doctors'

prescription that a product is purchased by consumers and the demand is stimulated. Next important factor that figures as 'increase the margin to retailers' also fares well in promoting a product. This point holds special relevance to the herbal manufactures as dealers push those products into the market on which they get greater margins.

'Supply regularly' has also been suggested by the retailers for promoting herbal medicines because the supply to some segments is not regular. In addition 'using sales representative/ MRs', 'advertise sufficiently' and 'introduce schemes in their sales' are other recommendations made by retailers for promoting the herbal medicines (see Table 14).

Considering the top three preferences in each city, it is observed that Patna city dealers propose 'increase margin to retailers', 'Motivate doctors to prescribe' and 'use sales representative/ MRs' as their top promotional tools in that order. Dealers in Sitamarhi reported that 'supply regularly', 'motivate doctors to prescribe' and 'increase the margin to retailers' were most important promotional tools in that order. 'Supply regularly' figures as most important promotional tool in Sitamarhi because this city has a poor infrastructure and there have been more frequent transportation problems than in others cities.

North zone cities (Delhi and Aligarh) have two most important proposals from retailers for promoting the herbal medicines the same and 'advertising sufficiently' is in third position in Delhi, while 'introduce schemes in their sales' has that position in Aligarh city (Table 14).

It is clear from Table 15 that the major suggestions given by the dealers / retailers dealing in different types of medicine i.e. 'herbal medicine dealers' and 'both types of medicine dealer' are exactly similar in top three order. While modern medicine dealers give the suggestions differently i.e. 'Motivate doctors to prescribe' followed by supply regularly and 'introduce schemes in their sales' as can be seen in Table 15.

The analysis of Tables 14 and 15 conveys an important message to marketers. They need to formulate a right promotional mix for their products, combining 'Motivate doctors to prescribe', 'increase margin to retailers' and 'supply regularly' etc. as per the need be to increase their sales and market share.

Ho33: Some specific actions are strongly recommended by the dealers / retailers which need priority for the promotion of herbal medicines.

Tables 14 and 15 also give clear indication that some specific actions are strongly recommended by the dealers/ retailers which need priority for the promotion of herbal medicine. Therefore the hypothesis 33 (Ho33) seems to be acceptable.

Table 1: Knowledge Source as Reported by the Consumers for Herbal Medicine

Source of Knowledge	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Old People of Family	30	17.86	41	23.03	71	20.52	35	19.34	41	25.95	76	22.42	147	21.46
Friends and Relatives	35	20.83	29	16.29	64	18.50	30	16.57	23	14.56	53	15.63	117	17.08
Dealer and Retailers	13	7.74	17	9.55	30	8.67	16	8.84	13	8.23	29	8.55	59	8.61
Advertisements	34	20.24	24	13.48	58	16.76	43	23.76	23	14.56	66	19.47	124	18.10
Vaids/ Hakims	29	17.26	42	23.60	71	20.52	37	20.44	40	25.32	77	22.71	148	21.61
Reading Books	27	16.07	25	14.04	52	15.03	20	11.05	18	11.39	38	11.21	90	13.14
Total	168	100.00	178	100.00	346	100.00	181	100.00	158	100.00	339	100.00	685	100.00

Table 2: Knowledge Source as Reported by the Consumer of Different Education for Herbal Medicine

Source of Knowledge	Education Level									
	< Matric		Matric		Graduate		> Gradu.		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Old People of Family	29	22.83	28	21.71	60	21.43	30	20.13	147	21.46
Friends and Relatives	22	17.32	23	17.83	47	16.79	25	16.78	117	17.08
Dealer and Retailers	11	8.66	11	8.53	25	8.93	12	8.05	59	8.61
Advertisements	21	16.54	21	16.28	53	18.93	29	19.46	124	18.10
Vaids/ Hakims	33	25.98	30	23.26	54	19.29	31	20.81	148	21.61
Reading Books	11	8.66	16	12.40	41	14.64	22	14.77	90	13.14
Total	127	100.00	129	100.00	280	100.00	149	100.00	685	100.00

Table 3: Knowledge Source as Reported by the Doctors for Herbal Medicine

Information Sources	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
T.V/ Radio	16	17.58	8	10.26	24	14.20	7	7.61	9	11.25	16	9.30	40	11.73
Newspaper/ Magazines	14	15.38	16	20.52	30	17.75	17	18.48	17	21.25	34	19.77	64	18.77
Books/ Drugs' Periodicals	19	20.88	17	21.79	36	21.30	24	26.09	20	25.00	44	25.58	80	23.46
Marketing Representatives	18	19.78	21	26.92	39	23.08	21	22.83	15	18.75	36	20.93	75	21.99
Discussion with other Doctors	24	26.38	16	20.51	40	23.67	23	25.00	19	23.75	42	24.42	82	24.05
Total	91	100.00	78	100.00	169	100.00	92	100.00	80	100.00	172	100.00	341	100.00

Table 4 : Knowledge Source as Reported by the Doctors Practicing Alternative Medicinal systems

Information Sources	Mode of Practice							
	H.P		M.P		P.B		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
TV/ RADIO	9	10.84	28	14.07	3	5.08	40	11.73
Newspaper/ Magazines	15	18.07	36	18.09	13	22.03	64	18.77
Books/ Drugs' Periodicals	23	27.71	42	21.11	15	25.42	80	23.46
Marketing Representatives	15	18.07	46	23.12	14	23.73	75	21.99
Discussion with other Doctors	21	25.30	47	23.62	14	23.73	82	24.05
Total	83	100.00	199	100.00	59	100.00	341	100.00

HP=Herbal Medicines Practitioners, MP= Modern medicines Practitioners, PB= Practitioners Practicing Both

Table 5: Effectiveness of Advertising Media for Herbal Medicines as Perceived by the Consumers

Information Sources	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
T.V	39	22.54	40	20.62	79	21.53	47	26.55	33	21.29	80	24.10	159	22.75
Radio	27	15.61	45	23.20	72	19.62	20	11.30	14	9.03	34	10.24	106	15.16
Newspaper & Magazine	45	26.01	38	19.59	83	22.62	44	24.86	42	27.10	86	25.90	169	24.18
Hoardings, posters & Bill boards	15	8.67	23	11.86	38	10.35	24	13.56	14	9.03	38	11.45	76	10.87
Display at Stores	12	6.94	10	5.15	22	5.99	13	7.34	15	9.68	28	8.43	50	7.15
Exhibition	35	20.23	38	19.59	73	19.89	29	16.38	37	23.87	66	19.88	139	19.89
Total	173	100.00	194	100.00	367	100.00	177	100.00	155	100.00	332	100.00	699	100.00

Table 6: Effectiveness of Advertising Media for Herbal Medicines as Perceived by the Consumers of different Education

Information Sources	Educational Level									
	< Matric		Matric		Graduate		> Graduate		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
T.V	32	22.70	25	20.49	67	23.43	35	23.33	159	22.75
Radio	26	18.44	22	18.03	38	13.29	20	13.33	106	15.16
News paper & Magazine	35	24.82	29	23.77	69	24.13	36	24.00	169	24.18
Hoardings, Posters & Bill Boards	12	8.51	15	12.30	32	11.19	17	11.33	76	10.87
Display at Stores	8	5.67	7	5.74	26	9.09	9	6.00	50	7.15
Exhibition	28	19.86	24	19.67	54	18.88	33	22.00	139	19.89
Total	141	100.00	122	100.00	286	100.00	150	100.00	699	100.00

Table 7: Impression Drawn by the Consumers from Promotional Tools Used for Herbal Medicines

Views	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Good Opportunity	16	32.00	15	30.00	31	31.00	16	32.00	9	18.00	25	25.00	56	28.00
No Consideration	25	50.00	24	48.00	49	49.00	21	42.00	27	54.00	48	48.00	97	48.50
Product is Poor	9	18.00	11	22.00	20	20.00	13	26.00	14	28.00	27	27.00	47	23.50
Total	50	100.00	50	100.00	100	100.00	50	100.00	50	100.00	100	100.00	200	100.00

Table 8: Impression drawn by the Consumers of Different Income Group from Promotional Tools Used for Herbal Medicines

Views	Monthly Family Incomes											
	Below 3000		3000-5999		6000-8999		9000-11999		Above 12000		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Good Opportunity	8	47.06	13	25.49	14	31.11	9	25.00	12	23.53	56	28.00
No Consideration	7	41.18	28	54.90	24	53.33	16	44.44	22	43.14	97	48.50
Product is Poor	2	11.76	10	19.61	7	15.56	11	30.56	17	33.33	47	23.50
Total	17	100.00	51	100.00	45	100.00	36	100.00	51	100.00	200	100.00

Table 9: Impression Drawn by the Consumers of Different Age Group from Promotional Tools Used for Herbal Medicines

Views	Age Group								Total	
	Below 25		25-40		40-55		Above 55			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Good Opportunity	22	39.29	10	17.86	16	28.57	8	25.00	56	28.00
No Consideration	24	42.86	34	60.71	23	41.07	16	50.00	97	48.50
Product is Poor	10	17.86	12	21.43	17	30.36	8	25.00	47	23.50
Total	56	100.00	56	100.00	56	100.00	32	100.00	200	100.00

Table 10: Attitude of Doctors towards New Herbal Products

Doctors Attitude	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Ignore it	1	4.00		0.00	1	2.00		0.00		0.00	0	0.00	1	1.00
Consider Image of the Company	5	20.00	4	16.00	9	18.00	11	44.00	6	24.00	17	34.00	26	26.00
Consider its Ingredients	10	40.00	15	60.00	25	50.00	10	40.00	12	48.00	22	44.00	47	47.00
Try Once	4	16.00	6	24.00	10	20.00	4	16.00	5	20.00	9	18.00	19	19.00
Wait till it Becomes Popular	5	20.00		0.00	5	10.00		0.00	2	8.00	2	4.00	7	7.00
Total	25	100.00	25	100.00	50	100.00	25	100.00	25	100.00	50	100.00	100	100.00

Table 11: Attitude of Doctors of Different Qualifications towards New Herbal Products

Doctors Attitude	Qualification of Doctors											
	RMP		GHM		GMM		PGHM		PGMM		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Ignore it			1	4.00							1	1.00
Consider Image of the Company	1	25.00	5	20.00	5	20.00	2	15.38	13	39.39	26	26.00
Consider its Ingredients	2	50.00	13	52.00	13	52.00	8	61.54	11	33.33	47	47.00
Try Once	1	25.00	6	24.00	3	12.00	3	23.08	6	18.18	19	19.00
Wait till it Becomes Popular		0.00		0.00	4	16.00		0.00	3	9.09	7	7.00
Total	4	100.00	25	100.00	25	100.00	13	100.00	33	100.00	100	100.00

RMP=Registered Medical Practitioner, GH=Graduate in Herbal Medicines, GM=Graduate in Modern Medicines
PGH=Post Graduate in Herbal Medicine, PGM=Post Graduate in Modern Medicines

Table 12: Major Steps Required for Promoting Herbal Medicines as Indicated by the Doctors

Promotional Steps		City/ Zones						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	North Zone	Total
Clinical Research & Trials	Score	100	110	210	115	114	229	439
	Coeff.	3.85	4.40	4.12	4.60	4.56	4.58	4.35
Sample Distribution	Score	68	46	114	39	47	86	200
	Coeff.	2.62	1.92	2.28	1.56	1.96	1.76	2.02
Documentation & Scientific Reports	Score	63	86	149	85	93	178	327
	Coeff.	2.74	3.44	3.10	3.40	3.72	3.56	3.34
Advertising in Medical Journals	Score	56	52	108	43	40	83	191
	Coeff.	2.24	2.17	2.20	1.72	1.60	1.66	1.93
Quality Standardization	Score	88	81	169	93	81	174	343
	Coeff.	3.52	3.00	3.25	3.72	3.12	3.41	3.33

Table 13: Major Steps Required for Promoting Herbal Medicines as Indicated by the Doctors Practicing Alternative Medicines

Promotional Steps	Mode of Practice							
	H.P		M.P		P.B		Total	
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Clinical Research & Trials	113	4.52	255	4.32	71	4.18	439	4.35
Sample Distribution	41	1.71	122	2.14	37	2.06	200	2.02
Documentation & Scientific Reports	80	3.20	193	3.39	54	3.38	327	3.34
Advertising in Medical Journals	51	2.13	109	1.88	31	1.82	191	1.93
Quality Standardization	90	3.33	191	3.24	62	3.65	343	3.33

Table 14: Major Suggestions given by the Dealers / Retailers to Promote the Herbal Medicines

Promotional Tools		City/ Zones						
		Patna	Sitamarhi	East Zone	Delhi	Aligarh	NorthZone	Total
Increase the Margin to Retailers	Score	43	52	95	47	43	90	185
	Coeff.	2.53	2.17	2.32	1.96	2.15	2.05	2.18
Supply Regularly	Score	10	3	13	0	5	5	18
	Coeff.	1.67	3.00	1.86		1.67	1.67	1.80
Advertise Sufficiently	Score	28	33	61	36	23	59	120
	Coeff.	1.56	1.65	1.61	1.80	1.77	1.79	1.69
Motivate the Doctors to Prescribe	Score	41	56	97	56	51	107	204
	Coeff.	2.05	2.24	2.16	2.43	2.22	2.33	2.24
Introduce Schemes in their Sale	Score	14	4	18	3	6	9	27
	Coeff.	2.00	1.33	1.80	1.00	2.00	1.50	1.69
Use Sales Representatives /MRs.	Score	14	2	16	8	22	30	46
	Score	2.00	1.00	1.78	1.60	1.69	1.67	1.70

Table 15 : Major Suggestion given by the Dealers / Retailers Dealing in Different Types of Medicines to Promote the Herbal Medicines

Promotional Tools	Medicines Deal							
	Herbal Medicines		Modern Medicines		Both Type Of Medicines		Total	
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Increase the Margin to Retailers	44	2.44	68	1.89	73	2.35	185	2.18
Supply Regularly			12	2.40	6	1.20	18	1.80
Advertise Sufficiently	32	1.78	41	1.46	47	1.88	120	1.69
Motivate the Doctors to Prescribe	39	1.95	87	2.42	78	2.23	204	2.24
Introduce Schemes in their Sale	2	1.00	9	2.25	16	1.60	27	1.69
Use Sales Representatives /MRs.	3	1.50	23	2.09	20	1.43	46	1.70

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CHAPTER - 9

PRICING AND DISTRIBUTION

PRICING AND DISTRIBUTION

Pricing Policies

In the profession of marketing, effectiveness of decision making process is most crucial because the decisions are usually supposed to respond to the trends and conditions prevailing in the market. Pricing decisions, being among the important aspects of marketing management are vital for a business, because they determine to a great extent the turnover and profitability of a concern. They are also crucial since customer satisfaction is greatly influenced by the pricing decisions of a company.

Livesey says, "It is a truism that profitability is affected more directly by pricing decisions than by decisions relating to any other marketing variable. It follows from this that the pricing plan should be an integral part of the marketing plan and hence ultimately the corporate plan". [1]

Oxenfeldt opines "The corporate pricing function within a decision making structure is a very complex process, many components must be integrated and managed as a unit of the firm is quickly to capitalize on its pricing opportunities". [2]

The above citations show the importance of the pricing decisions for a firm compared with the decisions relating to other marketing functions available for capitalizing the opportunities available in a competitive market.

Pricing strategy

Pricing strategy refers to practical application of pricing decisions. Pricing policies are the general rules set by the management of a concern to achieve greater share of the market taking into consideration the cost structure of a product, its market demand, price of the available substitutes and the state of economic environment, whereas pricing strategy involves translating these rules into practice.

According to Cundiff and Still "Pricing strategy is adoption of pricing policies by individualized tailoring of pricing decisions to fit particular competitive situation encountered by specific produce". [3]

Kotler says "Pricing strategy is the task of defining an initial price range and planned price movement through time that the company will use to achieve its marketing objectives in the target market". [4]

Oxenfeldt, however points out "It is a well known fact that pricing decisions should be taken in conjunction with the decisions on other elements of marketing mix. This implies that a company's pricing direction may thereby be constrained" [5]. The existence of internal constraints on pricing decisions has been highlighted by Oxenfeldt, in his analysis of the choices facing US producers in the early phase of market development.

Joel Dean has opined that "A company is established in view of some objectives. In some cases these corporate objectives have a link with the short run or long run profit maximization. In the long run profit maximization objective a firm should set either a high initial price which it would subsequently lower in the face of increasing competition, or a low initial price in order to detain potential competitors and establish a high market share". [6]

He makes a distinction between a 'skimming' and 'penetration' price policy while discussing the pricing of pioneer products.

It follows from the above that pricing strategy is adopted to determine the price of a product, which suits the capacity of the average customers. Pricing decisions should also be taken in conjunction with the decisions on other elements of the marketing mix. This is a complex process and a number of constraints are faced by the decisions makers, when a pricing policy is translated into actual practice to achieve the objectives of the company.

Distribution Policy

Distribution involves various activities necessary for transferring goods from the producer to the ultimate consumers. It includes physicals handling of

goods such as their movement and storage as well as legal, promotional and financial activities involved in the transfer of ownership.

Kotler says that physical distribution involves planning and implementing the physical flows of material and their final transfer from points of origin to points of use or consumption to meet the needs of the customers. [7]

In this chapter the main focus will be on the following points:

- Price perception of herbal medicines
- Purchase sources used and stock-out problem of herbal medicines
- Movement rate of selected herbal brands
- Margin offered to dealers / retailers
- Investment choice
- Regularity in supply

The influence of various purchase decision factors has been assessed to help the marketer adopt a suitable strategy. But offering a stimulus to motivate the consumers may not influence them uniformly. This is because of the intervention of perception factor.

Among the psychological concepts influencing consumer behaviour the major one is perception. Perception is the interpretation of stimuli by a consumer. Consumers perceive the stimulus differently. Attitude, personality traits and self-concept mainly contribute to one's perception. The past experience also contributes to the perception of a consumer because he associates it in all future purchase decisions. It is called apperception. Yankelovich defines apperception as seeing in the light of experience [8]. The perception of consumers in respect of reasonable price has been studied here.

Proper distribution coverage is a powerful tool to stimulate the demand and it can attract additional customers by offering better service. Its objective is to get the right goods to the right places at the right time for the least cost.

Distribution management is the area in which substantial savings can usually be affected. Parker [9] describes it as the last frontier for cost economies. Peter Drucker [10] calls it as the economy's *Dark Continent*. It is generally thought that a little attention to this side of management will lead to profit optimization. According to Drucker "both the market and the distribution channel are often more crucial than the product. They are primary and the product is secondary. They deserve a good deal of attention and study much more than they usually receive".

Retailing has been one of the prominent driving forces of business in India. Traditionally it is dominated to a large extent by the unorganized sector. But the growth of organized sector has been steady especially after the liberalization of Indian economy with new players entering the market. Prior to 1990, the retailing sector in India was quite primitive as numerous regulatory hurdles hindered the development of organized activity. And there was very little incentive for organized activity, as the Indian consumer had not evolved enough to be ready for modern retail formats.

According to a survey conducted by CII & Mckinsey, the total number of retail outlets in India is more than 12 million. The survey estimated that retail segment in India contributed more than 10% to the GDP and employed around 8% of the total workforce. The high contribution is attributable to the fact that India has the largest retail outlet density relative to population. Compared to the number of retail outlets per 1000 people, India has 5-10 retail outlets whereas it is just 3.7 in the US. This itself highlights the extent of retail penetration in India. The total retail trade in India for the year 2001 was estimated to be around $180 bn. With the estimated annual growth rate of 20%, the organized sector is expected to cross $300 bn trade by the year 2010.

Gandhi [11] points out an interesting feature of the Indian distribution system that manufacturers seldom lend any marketing support to their intermediaries. This leads to channel conflict instead of cooperation and calls for a better management through effective compensation, motivation, coordination and control.

Availability and regularity in supply are the two aspects related with the management of physical distribution. An efficient system produces few occurrences of non-availability and irregularity in the supply.

Price Perception for Herbal Medicine

Tables 1 to 3 show the perception of the prices that consumers hold about herbal medicine as compared to other medicine. It is clearly indicated from Table 1 that average prices of herbal medicines are higher than other medicines. In east zone 60% people reported that herbal medicine price was much higher than others while in north zone 47% people held this opinion. This variation is due to the fact that east zone is less developed in this respect as compared to north zone although the people of east zone are more price conscious.

Profession wise analysis in Table 2 reveals that 75% 'pensioners' feel that prices of herbal medicines are higher followed by 'Businessmen' (65%), 'servicemen' (58.89%), 'student' (54%), 'self employed' 39% and 'housewives' (39%).

Income wise also people have price perception on higher side among all the professions. The profession wise perception for higher price is in this order: lower income group 68.82%, 'lower middle' income group 56%, 'middle income' group 55.55%, 'upper middle' 51.43% and upper income group 45.00% (see Table 3).

It is evident from the result that low-income group is highly price conscious in comparison to upper income group. As consumers' income increases price perception of herbal medicine changes in that order. The figure implies that the majority of people desire that the prices of this medicine should be reduced. Manufacturers need to readjust them to bring it in conformity with the consumers desired level.

Ho33: Prices of herbal medicines are generally found by the consumers to be in the higher side.

It is clearly indicated from Tables 1 to 3. Chi square value for zones is χ^2 = 3.195 (df = 4). There is no difference zone wise and the hypothesis is accepted.

Ho34: Price perception about herbal medicines as generally held by the consumers varies with their profession and their family income.

Chi square test for profession is χ^2 = 20.399 (df = 20), therefore it is rejected. Chi square test for family income is χ^2 = 27.88 (df = 16). The test for family income shows that the hypothesis is acceptable. The hypothesis is therefore partly true.

Purchase Source for Herbal Medicines

Table 4 reveals that majority of consumers are making their purchase from 'herbal medicine stores' in the entire segment under study. Segment wise its variation is 41.51% to 55.70%. The proportion is substantially high in Aligarh city where it is more than 50 percent of purchase.

The fact is that Aligarh city is famous for treatment in herbal medicinal system because of the old Unani medical College here and people coming here from far off places for treatment. Consequently the proportion of herbal dealers / retailers here is more than in other segments.

The second popular buying point is 'drug shop' where dealers / retailers are dealing with both types of medicines (modern & herbal medicines). The proportion of purchase from such stores is 30.38% to 40.23% for various segments. Next ones are 'general stores' and 'company agencies'. In the east zone 11.92% consumers purchase their medicines from 'general stores' followed by 5.70% form 'company agencies'. While in north zone people make 9.41% purchase from 'company agency' and it goes down to 6.4% for 'general stores'.

Educations wise variation indicates that majority of high-educated people purchase their requirements from 'herbal medicine stores'. It is also clear from Table 5 that as the education level increases the trend of purchase from herbal medicines stores also increases. While as the education level decreases the trend of purchase from 'drug shop' and 'general stores' also increases and the vice–versa. (See Table 5)

It shows that highly educated people are more particular in purchasing herbal medicine as they feel comfortable to purchase from 'herbal medicine stores' thinking that the product will be fresh and they may have more option to chose the brand for same type of medicines and they can purchase with higher sense of satisfaction.

Manufacturers are suggested that they liberalize their distribution system and make easy availability for all kinds of retailers so that consumers purchase their products from the source of their preference.

Ho35: Herbal medicine stores are the major source that the consumers use for buying the herbal medicine

It is clear from Tables 4 & 5 that hypothesis 35 (Ho35) is true.

Ho36: The education level of consumers affects the sources that they use for buying the herbal medicines.

Table 5 favours clearly the hypothesis 36 (Ho36), therefore it is accepted.

Stock-outs faced by Consumers

As evident from Table 6 stock-outs of the desired brands have been reported by the consumers in this manner: 'rarely'- 57.29%, 'sometimes'- 31.66%, 'frequently' - 9.05% and 'always' - 2.01%. The consumers of north zone faced stock-out problem at higher level than their eastern zone counterparts.

Age group wise, this problem varies among the different age groups. 'Below 25' and 'above 55' age group consumers felt higher problem as compared to '20 – 40' and '40 – 55' age groups (see Table 7).

Variation can also be noticed profession-wise. 'Self employed', 'house wives' and 'students' felt greater difficulty in stock-outs while 'servicemen', 'businessmen' and 'pensioners' encountered lesser stock-out problem among these groups.

It is evident from the above figures that the customers are facing difficulty in purchase due to stock-out problem. So, manufacturers must arrange the regular supply of their products.

Ho37: Stockout is a major problem faced by the consumers of different regions.

The segment –wise stock-out problem can be observed in Table 6. The chi square test zone-wise is $\chi^2 = 2.380$ (df = 3) and for cities it is $\chi^2 = 8.407$ (df = 9). The problem zone wise is not significantly different. The hypothesis however seems to be valid.

Ho38: The consumers of different age groups and the consumers of different professions face the problem of stockout differently.

The chi square test for age group is $\chi^2 = 11.292$ (df = 9) and profession-wise it is $\chi^2 = 6.061$ (df = 15). The differences can be seen in Tables 7 and 8. Therefore the null hypothesis is not true and rejected.

Movement rate of selected herbal medicines

The movement rate of selected herbal brands of different companies as reported by the dealers was recorded in the study.

The five branded herbal products of each of the selected companies were taken to assess the movement rate of the products. As evident from

Table 9 containing the top twenty five products, the highest movement rate is achieved by '***Liv-52'*** of Himalaya Drugs Company.

According to ORG Marg report "Liv-52 a liver formulation, which is also the flagship brand of the company, every one third of a second one unit of Liv-52 is bought somewhere in the world. It is ranked 'Number one' in the hepato protective lipotropic segment and number four among all pharmaceutical products in India". [12]

Second, third and fourth ranks go respectively to 'Pudin Hara', 'Chawan Prash' and 'Hajmola' all of Dabur Company.

Hamdard Company for the products 'Cinkara' and 'Safi' holds the fifth and sixth rank among selected products, while Pylex (Himalaya), 'Gasex' (Himalaya) and 'Himgoli' (Dabur) have got seventh, eighth and ninth position respectively.

'Deemagheen' the product of Dawakhana Tibbiya College held the last position among the top ten products' slot out of the twenty five selected herbal medicines. None of the Rex Remedies' products have any position among the top ten products' slot (see Table 9).

In three cities (Delhi, Aligarh and Sitamarhi) 'Chawanparash', 'Pudin Hara' and 'Himgoli' of Dabur Company have highest movement rate whereas in Patna city Liv-52 has number one position among the selected products (see Table 9).

According to Table 10 'Herbal medicine dealers' reported that the topmost products' movement rate is in this order: 'Chawanprash' (Dabur), 'Cinkara' (Hamdard), 'Safi' (Hamdard), 'Deemagheen' (Dawakhana Tibbiya College), 'Pudin Hara' (Dabur) and 'Naunehal' (Hamdard).

'Modern medicines' dealers gave the first, third and fourth ranks respectively to 'Liv-52', 'Pylex' and 'Gasex' all of Himalaya Drug Company, while second and fifth ranks go respectively to Dabur's products viz. 'Hajmola' and 'Pudin Hara'.

The results show that the products of Himalaya and Dabur Companaies have higher movement rates than others as these companies mostly prefer 'modern medicines dealers/ retailers' for the sale of their products. Whereas the other companies generally use the 'herbal medicine dealers/ retailers' for this purpose. So the herbal medicines manufacturers are suggested that they should push up their products also by the modern medicines dealers / retailers.

Ho39: Some herbal brands are moving faster than the others in different cities surveyed.

Ho40: Movement rate of selected herbal brands varies with the dealers / retailers dealing in different types of medicines.

Table 9 shows some products are moving faster than others in different segments. Hypothesis 39 (Ho39) is therefore true.

Table 10 indicates clearly that movement rate of selected herbal brands varies with the types of dealers. For example 'Chawanprash' (Dabur) has been given top rank in movement by 'herbal medicines dealers', while others give third rank to it. Therefore null hypothesis 40 (Ho40) will be accepted.

The movement rate of the products alone does not suffice in effective marketing of these products. The companies also promote the products by offering attractive margins to sellers for selling the herbal medicines in place of modern medicines.

Margins offered to Dealers/ Retailers

Table 11 shows the margins given by the manufacturers as felt by the dealers/ retailers. Majority of dealers (63%) reported that they were getting higher margins in herbal medicines as compared to modern medicines. 28% have the opinion of the 'same margin'. Only 9% dealers believed that they get lower margins as compared to that of modern medicines. The dealers in big cities (Delhi and Patna) reported that they received higher margins in comparison to the dealers in small cities.

Among the dealers, majority of 'herbal medicines dealers' (60%) reported that they were getting higher margins while only 50% 'modern medicines dealers' were in this impression.

When we compare this analysis to previous chapter's analysis (promotion preference: Tables 14 & 15) we find that dealers are recommending to give more margin for promoting/ selling the herbal medicines. This appears strange to have these two perceptions. In the above context dealers report that the margin is high but turnover being less in herbal medicine than that in modern medicine they are suggesting to give more margins to dealers/ retailers to compensate it.

Ho41: The sellers are offered higher margin for selling the herbal medicines as compared to that in modern medicines.

The Chi square test for cities is $\chi^2 = 4.25$ (df = 6), the Chi square test for different dealers is $\chi^2 = 6.607$ (df = 4). The perceptions therefore are not significantly different city wise as well as dealer type wise.

From Tables 11 and 12 it is clearly indicated that the sellers are receiving higher margins for selling herbal medicine as compared to that for modern medicines. Therefore the hypothesis 41 (Ho41) will be accepted.

Investment in Herbal Medicines by Retailers

After the analysis of margin offered to retailers/ dealers, we take an overall assessment of investment attractiveness in selling the herbal medicines. This is to compare profitability in investment of herbal medicines selling in comparision with that of modern medicines. (Table 13 – 14)

More than 60% dealers reported that investment in herbal medicine selling is more profitable than that of other medicines. Dealers of east zone cities believed that investment in these medicines was more profitable than the opinion expressed by the dealers of north zone cities. (See Table 13)

Table 14 indicates that 95% dealers / retailers of 'herbal medicines' feel the investment in selling of these medicine are more beneficial than that of others while 57.50% 'modern medicines dealers' favour investment in herbal medicines selling as it is more profitable. The dealers / retailers who deals with both types of medicines (75%) feel that investment in herbal medicine selling is more profitable than that of modern medicines.

The result shows a high acceptability of herbal medicines marketing and it is also indicating that the future of herbal medicines market is brighter. Manufacturers should maintain this reputation, make an image among the dealers and give margin / profit to dealers' at a desirable level. This will be helpful in capturing the marketing share.

Ho42: Investment in herbal medicines selling is more profitable in the opinion of dealers/ retailers.

Chi square test segment wise is $\chi^2 = 17.918$ (df = 9) and for types of dealers is $\chi^2 = 10.727$ (df = 6). City wise opinions differ but dealer type wise do not differ.

The result indicates that the majority of dealers / retailers feel that investment in herbal medicine selling is more profitable. Therefore the null hypothesis 42 (Ho42) is true.

Regularity in Supply

In the end we consider the regular supply of herbal medicine because the regularity in supply is the prime condition for the successful distribution effort by any company. (Table 15 – 16)

In eastern zone supply of herbal medicine is more 'regular' than in north zone. On the whole, in all the segments more than 76% dealers / retailers indicate that the supply of these medicines is 'regular' followed by 21% indicating 'casual' and 3% 'rare'. (See Table 15)

According to the views of different dealers its regularity level is more or less similar, as less than 25% dealers of all types reported that supply of these medicines is 'casual'. The irregularity in supply has been expressed by 24% of dealers as given in Tables 15 and 16.

The complaints on the irregularity are to be noted by those responsible for marketing these products in different segments. A regular supply is the essence of marketing so the marketers have to pay proper attention to check all sorts of hurdles in supply, as it is higher in north zone.

Ho43: The supply of herbal medicines to dealers / retailer is not always regular.

The chi square test for zones is $\chi^2 = 1.997$ (df = 2), for cities it is $\chi^2 = 4.165$ (df = 6) and for dealers' types it is $\chi^2 = 1.372$ (df = 4). It means that all the cross sections of the dealers have the similar opinion.

The result from Tables 15 and 16 shows that supply of these medicines is not always regular to dealers / retailers. Therefore hypothesis 43 (Ho43) will be accepted.

Table 1: Prices of Herbal Medicines as felt by Consumers of Different Regions

Herbal Price	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very Low		0.00	1	2.00	1	1.01		0.00	2	4.00	2	2.00	3	1.51
Low	6	12.24	6	12.00	12	12.12	8	16.00	10	20.00	18	18.00	30	15.08
Same	16	32.65	12	24.00	28	28.28	12	24.00	21	42.00	33	33.00	61	30.65
High	25	51.02	23	46.00	48	48.48	25	50.00	15	30.00	40	40.00	88	44.22
Very High	2	4.08	8	16.00	10	10.10	5	10.00	2	4.00	7	7.00	17	8.54
Total	49	100.00	50	100.00	99	100.00	50	100.00	50	100.00	100	100.00	199	100.00

Table 2: Prices of Herbal Medicines as felt by Consumers of Different Profession

Herbal Price	Profession													
	Service		Business		Self Employed		Student		Housewife		Pensioner		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very Low	1	2.56		0.00		0.00	2	4.17		0.00		0.00	3	1.51
Low	5	12.82	3	7.50	10	25.00	9	18.75	3	10.71		0.00	30	15.08
Same	10	25.64	11	27.50	14	35.00	11	22.92	14	50.00	1	25.00	61	30.65
High	19	48.72	22	55.00	13	32.50	21	43.75	10	35.71	3	75.00	88	44.22
Very High	4	10.26	4	10.00	3	7.50	5	10.42	1	3.57		0.00	17	8.54
Total	39	100.00	40	100.00	40	100.00	48	100.00	28	100.00	4	100.00	199	100.00

Table 3: Prices of Herbal Medicines as felt by Consumers of Different Income Groups

Herbal Price	Monthly Family Income											
	Below 3000		3000-5999		6000-8999		9000-11999		Above. 12000		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very Low		0.00		0.00	3	6.67		0.00		0.00	3	1.51
Low	5	29.41	6	11.76	4	8.89	8	22.86	7	13.73	30	15.08
Same	2	11.76	16	31.37	13	28.89	9	25.71	21	41.18	61	30.65
High	6	35.29	23	45.10	23	51.11	15	42.86	21	41.18	88	44.22
Very High	4	23.53	6	11.76	2	4.44	3	8.57	2	3.92	17	8.54
Total	17	100.00	51	100.00	45	100.00	35	100.00	51	100.00	199	100.00

Table 4: Sources used for buying the Herbal Medicines by the Consumers of Different Regions

Purchasing point	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
General Stores	7	8.05	16	15.09	23	11.92	8	8.79	3	3.80	11	6.47	34	9.37
Drug Shops	35	40.23	40	37.74	75	38.86	34	37.36	24	30.38	58	34.12	133	36.64
Herbal Medicine Store	40	45.98	44	41.51	84	43.52	41	45.05	44	55.70	85	50.00	169	46.56
Co. Agency	5	5.75	6	5.66	11	5.70	8	8.79	8	10.13	16	9.41	27	7.44
Total	87	100.00	106	100.00	193	100.00	91	100.00	79	100.00	170	100.00	363	100.00

Table 5: Sources used for buying the Herbal Medicines by the Consumers of Different Educational Level

Purchasing point	Educational Level								Total	
	<Matric		Matric		Graduate		>Graduate			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
General Stores	11	13.41	7	10.00	11	8.40	5	6.25	34	9.37
Drug Shops	32	39.02	26	37.14	46	35.11	29	36.25	133	36.64
Herbal Medicine Store	33	40.24	32	45.71	64	48.85	40	50.00	169	46.56
Co. Agency	6	7.32	5	7.14	10	7.63	6	7.50	27	7.44
Total	82	100.00	70	100.00	131	100.00	80	100.00	363	100.00

Table 6: Occurrence of Stock Outs Faced by the Consumers of Different Regions for the Preferred Brand of Herbal Medicines

Stock Out	City/ Zone												Total	
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rarely	28	57.14	34	68.00	62	62.63	29	58.00	23	46.00	52	52.00	114	57.29
Some Times	15	30.61	12	24.00	27	27.27	16	32.00	20	40.00	36	36.00	63	31.66
Frequently	4	8.16	4	8.00	8	8.08	5	10.00	5	10.00	10	10.00	18	9.05
Always	2	4.08		0.00	2	2.02		0.00	2	4.00	2	2.00	4	2.01
Total	49	100.00	50	100.00	99	100.00	50	100.00	50	100.00	100	100.00	199	100.00

Table 7: Occurrence of Stock Outs Faced by the Consumers of Different Age Groups for the Preferred Brand of Herbal Medicines

Stock Out	Age Group								Total	
	Below 25		25-40		40-55		Above 55			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rarely	28	50.00	33	58.93	34	60.71	19	61.29	114	57.29
Some Times	17	30.36	18	32.14	21	37.50	7	22.58	63	31.66
Frequently	9	16.07	4	7.14	1	1.79	4	12.90	18	9.05
Always	2	3.57	1	1.79		0.00	1	3.23	4	2.01
Total	56	100.00	56	100.00	56	100.00	31	100.00	199	100.00

Table 8: Occurrence of Stock Outs Faced by the Consumers of Different Professions for the Preferred Brand of Herbal Medicines

Stock out	Profession												Total	
	Service		Business		Self Employed		Student		Housewife		Pensioner			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rarely	23	57.50	25	62.50	23	57.50	28	58.33	13	48.15	2	50.00	114	57.29
Some Times	14	35.00	11	27.50	13	32.50	13	27.08	10	37.04	2	50.00	63	31.66
Frequently	3	7.50	4	10.00	3	7.50	5	10.42	3	11.11		0.00	18	9.05
Always		0.00		0.00	1	2.50	2	4.17	1	3.70		0.00	4	2.01
Total	40	100.00	40	100.00	40	100.00	48	100.00	27	100.00	4	100.00	199	100.00

Table 9: Movement Rate of Selected Herbal Brands as Reported by the Dealers / Retailers

Products/ Company	City/ Zone									
	Patna		Sitamarhi		Delhi		Aligarh		Total	
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Liv-52 (Himalya)	70	2.8	63	2.52	69	2.76	66	2.64	268	2.68
Pudin Hara (Dabur)	68	2.72	59	2.36	72	2.88	66	2.64	265	2.65
Chawan Prash (Dabur)	64	2.56	66	2.64	72	2.88	63	2.52	265	2.65
Hazmola (Dabur)	68	2.72	62	2.48	61	2.44	67	2.68	258	2.58
Cinkara (Hamdard)	56	2.24	63	2.52	67	2.68	61	2.44	247	2.47
Safi (Hamdard)	63	2.52	54	2.16	68	2.72	59	2.36	244	2.44
Pylex (Himalya)	66	2.64	53	2.12	63	2.52	54	2.16	236	2.36
Gasex (Himalya)	59	2.36	54	2.16	65	2.6	57	2.28	235	2.35
Him Goli (Dabur)	60	2.4	46	1.84	65	2.6	52	2.08	223	2.23
Demagheen (Tibbya)	26	1.04	58	2.32	59	2.36	67	2.68	210	2.1
Lukol (Himalya)	51	2.04	44	1.76	55	2.2	43	1.72	193	1.93
Gerifort (Himalya)	50	2	37	1.48	51	2.04	54	2.16	192	1.92
Pachnol (Hamdard)	35	1.4	41	1.64	51	2.04	42	1.68	169	1.69
Naunehal (Hamdard)	44	1.76	47	1.88	34	1.36	34	1.36	159	1.59
Khoon Safa (Tibbya)	15	0.6	32	1.28	33	1.32	56	2.24	136	1.36
Silajit (Dabur)	49	1.96	21	0.84	25	1	23	0.92	118	1.18
Niswani (Tibbya)	13	0.52	38	1.52	25	1	38	1.52	114	1.14
Kulzum (Hamdard)	24	0.96	23	0.92	33	1.32	28	1.12	108	1.08
Demagee (Rex)	21	0.84	7	0.28	56	2.24	10	0.4	94	0.94
Rex Health Tonic (Rex)	12	0.48	15	0.6	29	1.16	21	0.84	77	0.77
Gasonil (Rex)	18	0.72	11	0.44	33	1.32	12	0.48	74	0.74
Likorex (Rex)	8	0.32	16	0.64	30	1.2	19	0.76	73	0.73
Rexo Tone (Rex)	7	0.28	10	0.4	25	1	15	0.6	57	0.57
Aujaiah (Tibbya)	15	0.6	14	0.56	5	0.2	12	0.48	46	0.46
Jawarish Shahi (Tibbya)	13	0.52	10	0.4	4	0.16	15	0.6	42	0.42

Table 10: Movement Rate of Selected Herbal Brands as Reported by the Dealers / Retailers Dealing in Different Types of Medicines

Products/ Company	Medicines Dealing							
	Herbal Medicines		Modern Medicines		Both Type Of Medicines		Total	
	Score	Coeff.	Score	Coeff.	Score	Coeff.	Score	Coeff.
Liv-52 (Himalya)	30	1.5	118	2.95	120	3	268	2.68
Pudin Hara (Dabur)	54	2.7	102	2.55	109	2.73	265	2.65
Chawan Prash (Dabur)	59	2.95	94	2.35	112	2.8	265	2.65
Hazmola (Dabur)	32	1.6	110	2.75	116	2.9	258	2.58
Cinkara (Hamdard)	58	2.9	75	1.88	114	2.85	247	2.47
Safi (Hamdard)	58	2.9	83	2.08	103	2.58	244	2.44
Pylex (Himalya)	26	1.3	106	2.65	104	2.6	236	2.36
Gasex (Himalya)	24	1.2	103	2.58	108	2.7	235	2.35
Him Goli (Dabur)	46	2.3	82	2.05	95	2.38	223	2.23
Demagheen (Tibbya)	57	2.85	59	1.48	94	2.35	210	2.1
Lukol (Himalya)	23	1.15	84	2.1	86	2.15	193	1.93
Gerifort (Himalya)	23	1.15	87	2.18	82	2.05	192	1.92
Pachnol (Hamdard)	51	2.55	34	0.85	84	2.1	169	1.69
Naunehal (Hamdard)	53	2.65	33	0.83	73	1.83	159	1.59
Khoon Safa (Tibbya)	49	2.45	27	0.68	60	1.5	136	1.36
Silajit (Dabur)	32	1.6	35	0.88	51	1.28	118	1.18
Niswani (Tibbya)	45	2.25	10	0.25	59	1.48	114	1.14
Kulzum (Hamdard)	46	2.3	19	0.48	43	1.08	108	1.08
Demagee (Rex)	39	1.95	15	0.38	40	1	94	0.94
Rex Health Tonic (Rex)	43	2.15	0	0	34	0.85	77	0.77
Gasonil (Rex)	37	1.85	1	0.03	36	0.9	74	0.74
Likorex (Rex)	39	1.95	1	0.03	33	0.83	73	0.73
Rexo Tone (Rex)	32	1.6	0	0	25	0.63	57	0.57
Aujaiah (Tibbya)	29	1.45	0	0	17	0.43	46	0.46
Jawarish Shahi (Tibbya)	26	1.3	0	0	16	0.4	42	0.42

Table 11: Margin Offered to the Dealers/ Retailers for Herbal Medicine as Reported by them

Margin	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Less Margin	2	8.00	4	16.00	6	12.00	2	8.00	1	4.00	3	6.00	9	9.00
Same	6	24.00	6	24.00	12	24.00	6	24.00	10	40.00	16	32.00	28	28.00
High Margin	17	68.00	15	60.00	32	64.00	17	68.00	14	56.00	31	62.00	63	63.00
Total	25	100.00	25	100.00	50	100.00	25	100.00	25	100.00	50	100.00	100	100.00

Table 12: Margin Offered to the Dealers/ Retailers for Herbal Medicine as Reported by the Dealers/ Retailers of Different Types of Medicines

Margin	Medicines Deal						Total	
	Herbal Medicines		Modern Medicines		Both Type Of Medicines			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Less Margin	2	10.00	5	12.50	2	5.00	9	9.00
Same	6	30.00	15	37.50	7	17.50	28	28.00
High Margin	12	60.00	20	50.00	31	77.50	63	63.00
Total	20	100.00	40	100.00	40	100.00	100	100.00

Table 13 : Profitability of Investment in Herbal Medicines' Selling as Reported by the Dealers/ Retailers

Choice of Investment	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Less Profitable	3	12.00		0.00	3	6.00	2	8.00	1	4.00	3	6.00	6	6.00
Same as in Modern Medicine	3	12.00	4	16.00	7	14.00	8	32.00	7	28.00	15	30.00	22	22.00
Profitable	14	56.00	15	60.00	29	58.00	15	60.00	17	68.00	32	64.00	61	61.00
Highly Profitable	5	20.00	6	24.00	11	22.00		0.00		0.00	0	0.00	11	11.00
Total	25	100.00	25	100.00	50	100.00	25	100.00	25	100.00	50	100.00	100	100.00

Table 14: Profitability of Investment in Herbal Medicines Selling as Reported by the Dealers/ Retailers Dealing in Different Types of Medicines

Choice of Investment	Medicines deal							
	Herbal Medicines		Modern Medicines		Both Type of Medicines		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Less Profitable		0.00	4	10.00	2	5.00	6	6.00
Same as in Modern Medicine	1	5.00	13	32.50	8	20.00	22	22.00
Profitable	17	85.00	20	50.00	24	60.00	61	61.00
Highly Profitable	2	10.00	3	7.50	6	15.00	11	11.00
Total	20	100.00	40	100.00	40	100.00	100	100.00

Table 15: Regularity in Supply of Herbal Medicines in Different Regions as Reported by the Dealers/ Retailers

Supply of Medicines	City/ Zone													
	Patna		Sitamarhi		East Zone		Delhi		Aligarh		North Zone		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rare	1	4.00		0.00	1	2.00	1	4.00	1	4.00	2	4.00	3	3.00
Casual	3	12.00	5	20.00	8	16.00	5	20.00	8	32.00	13	26.00	21	21.00
Regular	21	84.00	20	80.00	41	82.00	19	76.00	16	64.00	35	70.00	76	76.00
Total	25	100.00	25	100.00	50	100.00	25	100.00	25	100.00	50	100.00	100	100.00

Table 16: Regularity in Supply of Herbal Medicines in Different Regions as Reported by the Dealers/ Retailers Dealing in Different Types of Medicines

Supply of Medicines	Medicines Deal							
	Herbal Medicines		Modern Medicines		Both Type of Medicines		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Rare		0.00	2	5.00	1	2.50	3	3.00
Casual	5	25.00	8	20.00	8	20.00	21	21.00
Regular	15	75.00	30	75.00	31	77.50	76	76.00
Total	20	100.00	40	100.00	40	100.00	100	100.00

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CHAPTER -10

CONCLUSIONS

&

RECOMMENDATIONS

CONCLUSIONS & RECOMMENDATIONS

India is endowed with a rich wealth of medicinal plants. The use of medicinal plant in India is as old as human civilization, but in recent years their use has been growing in popularity. Herbal therapy is also a major component of Indian system of medicines like Traditional Chinese medicines, Native American medicines, homeopathy and Naturopathy.

In India, herbs have always been the principal from of medicine. All drug based systems under Indian system of Medicine and Homeopathy (ISM&H) namely Ayurveda, Siddha, Unani, and homeopathy largely use herbal medicine as raw materials for the preparation of drugs. During the British rule these medicinal systems suffered a slow down and its development was hampered due to withdrawal of governmental patronage. But since the system enjoyed faith among the masses it continued to be practiced.

India has a well-established and fast growing drug and pharmaceutical industry utilizing plant based raw materials. There are around 7000 big and small pharmacies manufacturing medicine and over-the-counter (OTC) products like digestives and laxatives, cosmetics, hair oils, aphrodisiacs and other tonics based on Ayurvdic , Unani and Siddha systems of Medicine.

No reliable data is available regarding annual demands of the raw materials & compound medicine by the Indian drug and pharmaceutical industry, because the herbal market in the country as on today is unorganized. There is a vast, secretive and largely unregulated trade in herbal raw materials, mainly from the wild, which continues to grow dramatically in the absence of serious policy attention. In materials where the origin of a particular drug is assigned to more than one plant, due to which adulteration is common in such cases, this affects the market both directly and indirectly. This makes the estimation of demand a difficult task. Such information emanating from various sources differs widely from each other.

It is evident from the projections made on the demand aspect of a few of the medicinal plants (see Table-7 in Chapter-3) that this sector offers a lot of opportunities. Fluctuation in demand and supply are characteristic of this sector owing mainly to the unorganized nature of trade but the wide variation in domestic and international prices (see Table 8 in Chapter-3) is a cause of concern. Supply of crude drugs and lack of value addition could be a few of the reasons for these fluctuations, but the certification of the product could be an alternative, which could help the Indian stake holders of medicinal plants realize better proceeds from their cultivation and trade.

Apart from meeting requirements of Herbal Medicine for domestic consumptions, India exports crude drugs mainly to developed countries, viz. Germany, France, Switzerland, UK, and Japan, who contribute between 75 to 80 percent of the total export of crude drug from India. The principal herbal drugs that have been finding a good market in foreign countries are Aconite, Alo, Belladona, Acorus, Cinchona, cassia tora, Dioscorea, Digitalis, Ephedrine, Plantago (isagol), cassia (senna) etc. Due to the changes in the patent regime in 2005, the pharmaceutical companies are shifting prescribed drugs to OTC drug category. Internationally it is a proven concept that people go from prescribed drugs to OTC because the cost of medicine goes down and the convenience factor increases. After the patenting regime in 2005 many Indian pharmaceutical companies will have a competitive advantage of not being copied the patented drugs cheaply. So currently there are only two ways to achieve growth i.e. by promoting OTC products and promoting the retail selling.

From the review of literature it has been observed that although there is a plethora of literature on different facets, dimensions and aspects of herbal medicine in India yet there is a shortage of literature in the field of modern marketing of compound herbal formulations. As a matter of fact, herbal medicine Industry is by and large unorganized and it is a newly emerging industry, seeking the attention of the government, corporate houses, economists and the researchers. Hence very few books, write-ups and articles have appeared covering the aspects of modern marketing approach of

compound herbal products, viz: product, Price, distribution & promotion of the herbal medicine.

Market Analysis

During the past decades the demand for drugs has considerably increased in the country mainly due to an increase in the level of consumption for drugs. The market survey shows that allopathic treatment has highest effectiveness level i.e. 4.5 on 1–5 scale. Ayurvedic, Unani and Homeopathic treatments have effectiveness level of 3.45, 3.35 and 3.18 respectively. The effectiveness level of herbal treatment (including Ayurvedic, Unani and Homeopathy treatments) in the cities of Patna, Sitamarhi, Delhi and Aligarh are 3.37, 3.32 and 3.34 respectively. This shows more or less similar level of effectiveness in all of the above cities.

The above figures show an edge of Allopathy over all others, but the other treatments have a strong presence in the minds of people. Indian system of medicine has an excellent record for curing the chronic health problems that do not respond well to modern medicine. Herbal drugs are easily accepted by the people because of the reasons like superior quality of protoplasm, easy to adopt, free from all side effects known to be caused by synthetic drugs.

The survey reveals that herbal medicines are especially effective in 'liver and digestive disorder' followed by 'men and women sexual problems', 'vigour and vitality', 'blood & skin care', 'personal care', 'cold & cough', 'joint & bones problems' and 'children care'. In above diseases herbal medicines are considered to be more effective than the others. In the opinion of consumers and doctors on a 1 – 5 scale, the effectiveness level of herbal medicines is given almost uniformly by the consumers & by the doctors for different ailments as indicated below.

Disease Categories	Rate by Consumers		Rate by Doctors	
	Co-eff.	Rank	Co-eff.	Rank
Liver and digestive disorder	4.44	1	4.37	1
Vigour & vitality	3.38	3	3.82	3
Cold & cough	3.54	5	3.53	6
Men & women sexual problem	4.18	2	4.09	2
Joint & Bones problem	2.91	6	3.19	7
Children care	2.82	7	2.38	8
Blood & skin care	3.64	4	3.81	4
Personal care (Hair, nail and oral etc)	3.64	4	3.77	5

$r_s = 0.952381$

This implies that the companies should focus on the medicines for the ailments in which consumers and doctors have more faith on herbal medicines. The companies should also induce the consultants to prescribe herbal medicines for these ailments. And the companies should adopt best R&D activities in those disease areas where herbal medicines have more effectiveness. Advertising and sales promotion should also sufficiently support such herbal medicines.

On the whole consumer believes that five most important reasons for popularity of herbal medicines are: 'less side effect', 'natural ingredients instead of synthetic ones', 'total eradication of disease', 'no expiry of medicine', 'affordable price' and 'rising trends for the traditional medicines', while doctors reported that five important reasons for it are in this order: 'natural ingredients instead of synthetic ones', 'less side effect', 'total eradication of disease', 'rising trends for the traditional medicines' and 'affordable price'. The people are becoming increasingly dissatisfied due to the detrimental effects of modern drug therapy. There has been an increase in awareness about the modern medicines i.e. this treatment is palliative rather than curative. Majority of high income group has life style and immunization related problems. They feel that the herbal medicines keep the immune system strong and eradicate the disease at the root level. The results also show different reasons for the popularity of herbal medicine as expressed by the practitioners of alternative medicines. The companies should maintain this faith for herbal medicine in the minds of doctors and consumers. Adulteration

in herbal medicine should be avoided, and good manufacturing practices should be adopted. For raising the awareness about herbal medicines, exhibitions and stalls should be arranged especially in rural areas.

It is observed that majority of doctors are not in favour of herbal treatment in intensity (acuteness) of disease, but some doctors consider it as a supplement in this stage. They point out this treatment to be beneficial in prolonged illness, its use as a supplement is more frequent followed by 'try first' in that stage. And in initial stage of disease they have choice of herbal treatment in this order: 'as a supplement' and 'try as a last resort'. Consumers and doctors have confidence in trail of herbal treatment as a supplement in all the stages of disease uniformly.

The trial of herbal treatment by the herbal practitioners & practitioners practicing both is the frequent choice in prolonged illness and in initial stage of disease, while trial as a supplement in prolonged illness is found more frequent by the modern practitioners. All categories of doctors who prescribe alternative medicines also believe that herbal treatment doesn't respond well in the stage of acuteness. The companies should therefore develop the products for chronic diseases and for initial stage of treatment and should adopt good manufacturing practices for capturing this potential market.

The data also show that the herbal trend is picking up in all the cities/zones. The positive aggregate figures show that all the cities have a positive transformation in favour of herbal medicines in the market. An interesting thing to be noted here is that this trend is at the early stage of its development. This leaves markets with a lot of space to further spruce up the things and make them work to their advantage by offering new scientific herbal formulations. Indian companies specializing in Ayurveda and Unani need to take special notice of it.

It is indicated in Table 20 that willingness for stocking of herbal medicines by retailers is high in almost all the cities. North zone shows higher willingness than the east zone i.e. 80% and 75.51% respectively (which includes 'more' & 'much more' choices in the questionnaire). Dealer wise

willingness shows that all types of dealers have the willingness for stocking of herbal medicines more. Among the herbal medicines dealers and both types of medicines' dealers it is 80% and 65% respectively while dealers of modern medicine indicate their willingness only at 41% for 'more' and 25.54% for 'much more' stocking of herbal medicines. The result confirms the faith in the herbal trend gaining pace in all cities under study. The manufacturers need to take note of the situation and rollout the products with greater emphasis on the herbal remedies. There is a fast changing perception particularly among the people of eastern and northern India (where the survey is conducted) and throughout India in general. The herbal market calls for greater research in the herbal formulations and producing quality products to compete with the foreign products.

Company/ Product Preferences

City/ Region-wise, people have a high rating for three companies i.e. 'Himalaya Drug Company' is the highest in performance followed by 'Hamdard Wakf Lab.' and 'Dabur India Ltd.' in eastern region, while Hamdard has highest performance followed by 'Himalaya Drug Co.' & 'Dabur India Ltd.' in the north region. Dabur has been given the same rating in all the regions and all the cities by the consumers. Doctors also rated 'Himalaya Drug Company' at highest performance level and local manufacturing companies of herbal medicine at lowest level. It appears that these companies have earned a high market reputation by their persistent efforts. The others should also take a lesson and strive hard by standardizing the formulations and meeting the safety, quality, integrity and authenticity norms, laid down by the market leaders. The existing leaders need to maintain and enhance this reputation by their continued commitment to the pursuit of public health.

Majority of doctors are in the favour of producing herbal drugs in all forms and sizes, only 4% doctors reported that producing in all forms and sizes is not 'desired'. From the above analysis it is observed that manufacturers of herbal drugs should make it possible to offer their products in all forms and sizes because the majority of Indian people belong to lower

income groups who look for the forms and sizes of herbal medicine which suit their budget.

'Tablets and capsules' are most preferable forms in all the cities / zones. 'Syrup and sherbet' is the second preferable form of herbal drugs in the small cities (Aligarh and Sitamarhi), while 'paste' form is the second choice of consumers in Delhi. The sellers/ processors should try to present their products in all the preferred forms especially in 'tablets/ capsules' and 'syrup/ sherbet' forms, which are popular choice of consumers. They should also try to present their products in alternative packages to satisfy the individual needs of different segments of users. For the busy and mobile people the pouches should be offered for providing convenience. Unbranded loose supply should be avoided, as it is less acceptable by the people. The products should be packed in all common sizes to satisfy different income groups among the users. For the economically poor people single dose pouches should also be offered for the reason of affordability. Small packs also appear to be more popular and acceptable in most of the segments. The most preferable characteristics of herbal medicine on 1 – 5 scale are indicated below:

S.No.	Product Attributes	Rating by Consumers		Rating by Doctors	
		Co-eff.	Rank	Co-eff.	Rank
1.	Proper prescription	3.01	4	3.62	2
2.	Effective formula	3.66	1	3.72	1
3.	Ingredients	3.56	2	3.72	1
4.	Nutritional value	3.09	3	2.79	3
5.	Taste and flavour	1.96	6	1.54	6
6.	Usage & storage convenience	2.23	5	1.56	5
7.	Form of medicine	1.77	7	1.70	4
8.	Packaging	1.25	8	1.50	7

r_s = 0.796 among the two set of ranks

It implies that herbal manufacturers should give more attention to the product attributes which are more desired by the consumers and doctors especially the ingredients should be standard ones and the formula should be

effective for the ailments. Proper prescription is also an important characteristic of herbal treatment. Suitable prescription will be instrumental for curing the ailments within the limited time.

The consumers and doctors feel difficulty in using the herbal medicines due to the conventional forms & old methods of preparation. So the processors should try to produce their products by latest technology and for the busy and mobile kinds of consumers it should be acceptable and convenient to use.

Promotion and Information

The study shows that people of big cities (Patna & Delhi) have important knowledge source as 'advertisement' that affects the purchase decision of the consumers. While in small cities (Sitamarhi and Aligarh) consumers have confidence in other sources of knowledge for herbal medicine like 'vaids & hakims' and 'old people of the family'. The doctors have stated that the top three knowledge sources for herbal medicines are 'discussion with other doctors', 'books/ drug periodicals' and marketing representatives i.e. 24.05%, 23.46% and 21.99% respectively. They reported that 'newspaper' and 'T.V./ radio' are least informative sources for herbal medicines for them.

In this age of media various advertising and publicity tools like television, print media etc. are dominant in the markets. These media have penetrated to lowest level of population and have a wide reach among people of all classes. Thus the marketers utilize these fully to turn consumers' perception in their favour. The decision on advertising media mix should therefore be on the basis of the prevalence of various media according its effectiveness region-wise.

Promotional tools like price discount, free gift and extra with product are expected to normally get a favourable response of all the segments, income and the age groups of consumers in spite of the differences in the proportions favoring them. The study shows clearly the overall favorable

attitude for new herbal products. It indicates a favourable market with a patronage of all kinds of doctors. Companies should manufacture the quality products and try to maintain a rapport with the doctors of all kinds. The herbal formulations should have laboratory research, animal screening and controlled clinical trials and companies should be conscious about their safety before marketing them. The pharmacopeia of Indian traditional medicine needs updating from time to time and development of new methods for maintaining quality control for plant-based drugs. Therefore constant R & D inputs are required for developing newer methods of standardization and quality control. Samples of drugs must be distributed among the doctors, so that they could test them on their patients. The advertisements of products containing its composition, indications, adverse effects, contra indications, doses and prices should be published in different professional journals, which are published by different medical associations and commercial advertisements should be released through international advertising agencies.

The dealers/ retailers are recommending 'motivate doctors to prescribe' as the most potential promotional tool. It is through doctors' prescription that a product is purchased by consumers and the demand is stimulated. Next important factor that figures in recommendation list is 'increase the margin to retailers'. This point holds special relevance to the herbal manufactures as dealers push those products into the market on which they get greater margins.

'Supply regularly' has also been suggested by the retailers for promoting herbal medicines because the supply to some segments is not regular. In addition 'using sales representative/ MRs', 'advertise sufficiently' and 'introduce schemes in their sales' are other recommendations made by retailers for promoting the herbal medicines.

Pricing and Distribution

The consumers feel that average prices of herbal medicines are higher than other medicines. In east zone 60% people reported that herbal medicine price was much higher than others while in north zone 47% people held this

opinion. This variation is due to the fact that east zone is less developed in this respect as compared to north zone although the people of east zone are more price conscious. It is also evident from the result that low-income group is highly price conscious in comparison to upper income group. As consumers' income increases price perception of herbal medicine changes in that order. The figure implies that the majority of people desire that the prices of this medicine should be reduced. Manufacturers need to readjust them to bring it in conformity with the consumers desired level.

The majority of consumers are making their purchase from 'herbal medicine stores' in the entire segment under study. Segment wise its variation is 41.51% to 55.70%. The proportion is substantially high in Aligarh city where it is more than 50 percent of purchase. The second popular buying point is 'drug shop' where dealers / retailers are dealing with both types of medicines (modern & herbal medicines). The proportion of purchase from such stores is 30.38% to 40.23% for various segments. Next ones are 'general stores' and 'company agencies'. Manufacturers are therefore suggested that they liberalize their distribution system and make easy availability for all kinds of retailers so that consumers purchase their products from the source of their preference.

The survey also shows that the customers are facing difficulty in purchase due to stock-out problem. The problem is higher in north zone in comparison to east zone. So, manufacturers must arrange the regular supply of their products.

The highest movement rate out of the twentyfive selected herbal brands is achieved by '***Liv-52***' of Himalaya Drugs Company. According to an ORG Marg report "Liv-52 a liver formulation, which is also the flagship brand of the company, every one third of a second one unit of Liv-52 is bought somewhere in the world. It is ranked 'Number one' in the hepato protective lipotropic segment and number four among all pharmaceutical products in India". Second, third and fourth ranks go respectively to 'Pudin Hara', 'Chawan Prash' and 'Hajmola' all of Dabur Company. Hamdard Company's products 'Cinkara' and 'Safi' hold the fifth and sixth rank among selected

products, while Pylex (Himalaya), 'Gasex' (Himalaya) and 'Himgoli' (Dabur) have got seventh, eighth and ninth position respectively. 'Deemagheen' the product of Dawakhana Tibbiya College held the tenth slot out of the twenty five selected herbal medicines. None of the Rex Remedies' products have any position among the top ten products' slot. The results show that the products of Himalaya and Dabur Companaies have higher movement rates than others as these companies mostly prefer 'modern medicines dealers/ retailers' for the sale of their products. Whereas the other companies generally use the 'herbal medicine dealers/ retailers' for this purpose. So the herbal medicines manufacturers are suggested that they should push up their products also by the modern medicines dealers / retailers.

The result shows a high acceptability of herbal medicines marketing and it is also indicating that the future of herbal medicines market is brighter. Manufacturers should maintain this reputation, make an image among the dealers and give margin / profit to dealers' at a desirable level. This will be helpful in capturing the marketing share.

In eastern zone supply of herbal medicine is more 'regular' than in north zone. On the whole, in all the segments more than 76% dealers / retailers indicate that the supply of these medicines is 'regular' followed by 21% indicating 'casual' and 3% 'rare'. The complaints on the irregularity are to be noted by those responsible for marketing these products in different segments. A regular supply is the essence of marketing so the marketers have to pay proper attention to check all sorts of hurdles in supply, as it is higher in north zone.

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ANNEXURES

ANNEXURE: 1

COMPANIES' PROFILE

Dabur

Dabur was established [1] in 1884 by Dr. SK. Burman. Dabur India is in the business of manufacturing and selling of ayurvedic medicines, ayurvedic, natural and herbal personal & health products and processed foods either directly or indirectly through its subsidiaries. The company is among top FMCG companies in the country. Its presence in Indian market is for past 115 years. Some of its ayurvedic/ OTC brands are the market leaders in their respective segments.

Dabur has developed considerable expertise in these traditional areas and has well understood the consumer preferences for the traditional ayurvedic remedial measures. The company hitherto had been a family run business but with increasing competition the company has undertaken massive restructuring over past few years and has exited from a number of low margin businesses. The company has hived off its foods business into a 100% subsidiary. In FY00 the company sold off its entire stake in Excelsia JV with Nestle for manufacturing biscuits for a nominal value of Rs10. The company has also decided to wind up its finance businesses.

Though the company exited from beauty products business but with increasing market size and higher margins the company has revived its interests in reentering the business. The company recently decided to venture into Insurance sector in a tie up with Allstate.

In Q1 FY01 the company's sales grew 6.1% yoy growth to Rs2.5bn. On a comparable basis (i.e. excluding sales from foods business) yoy growth in sales would have been higher at 10%. Operating profit margin excluding other income has recorded a 0.7% point gain from 6.5% to 7.2% mainly aided by lower raw material cost. Net profit in the previous corresponding quarter was inflated due to a non-recurring income of Rs211mn from sale of stake in confectionery joint venture General de Confeteria (now Jayco India). Adjusted net profit after including this non-recurring income therefore displays a 73% yoy decline to Rs72mn.

Today Dabur has a worldwide presence with two 100 percent subsidiaries, Dabur Foods Limited and Dabur Oncology Plc, and Dabur Nepal Private Limited with 80 percent stake. Dabur is a diversified group with thorough knowledge of Ayurveda, medicinal herbs and natural products and biotechnology. It has strong market position in the ayurvedic health care and personal care segments, supported by strong brands like Chyawanprash, Hajmola, Amla Hair Oil and Vatika, well established distribution franchise and adequate multi- locational manufacturing facilities. These business strengths are complemented by the company's favorable financial profile characterized by stable profit margins, adequate cash generation from operations and comfortable interest coverage.

Living up to times, the company strategically transformed itself from a purely ayurvedic company to a producer and marketer of natural and herbal products for personal care. It even ventured into the field of oncology.

The company has also developed strong brands like Hajmola, Pudin Hara, Hingoli, Chyawanprash, Amla Hair Oil and Lal Dant Manjan capturing a majority of market shares. It also added herbal anti-dandruff shampoo and oil under Vatika brand, Binaca-Fresh tooth powder, Efarelle-Comfort, a unique herbal product for relief from abdominal pain, Amla Lite hair oil, among other products to strengthen its portfolio. The product portfolio of an assortment of well-entrenched brands has positioned Dabur as a unique player in the FMCG sector. Dabur develops its products in-house, based on the knowledge and expertise in the field of Ayurveda by strong research and development. It has developed a strong distribution network that provides the advantage of reach and coverage to retain and gain market share. Having gone for diversification and joint ventures, the company now is on a consolidation path, consciously limiting its presence and expansion in select areas where it perceives a definite competitive advantage. It entered the processed food market with selected products like Home Made garlic, ginger and onion pastes and 'Real' fruit juices and deliberately avoided chocolate, chips and aerated drinks on account of their being non-healthy products, thus keeping company's 'natural-healthier' image. 'Real', launched in 1997, has over 50 percent share in the Rs.100 crores natural fruit juice market.

Dabur's success banks on its aggressive brand launches and constant restructuring of its product portfolio. It has leveraged on its natural image to venture in newer categories such as shampoo and skin care. The medium term growth of the company comes from line extensions within categories, targeting upper income household. Over the long term, management plans to extend the natural care platform to skin care. The health care division is rendered most immune to MNC competition, owing to generic 'ayurvedic' profile of the products.

Dabur constantly updates its product profile and has entered into antiseptic cream, backache remedies and even anti-cancer research. The strategy is more profit oriented, as it deals with fewer but more focused product innovations. Thus, while most FMCG companies are feeling the pressure of open market, Dabur sails high beating both international and domestic competition.

Himalaya Drug Company

The Himalaya Drug Company was founded in 1930 by Mr. M. Manal with a vision to put Ayurveda on par with modern medicine. Today, Himalaya products have been endorsed by doctors around the globe and consumers in over 60 countries.

It has a strong market presence in Ayurveda Health care and personal care needs. Himalaya satisfies its customers health needs through well-researched, effective and safe remedies harnessed from nature's wealth. Each Himalaya product undergoes years of primary research and clinical trials before it reaches the market. It believes that no investment is too much when it comes to scientifically creating safe drugs and therapies for this it has state-of-the art facilities in its R & D department which focuses on product development, quality control and standardization that are derived through rigorous research.

The company has categorized its products into four main ranges i.e.

- Pharmaceutical
- Personal care
- Pure – Herbs
- Animal Health

The Pharmaceutical range compromises over 35 products which is also broadly classified into children's health, men's health, women's health and general health categories. They include strong brands like Liv-52, Bonnisan, Himcocid, Mental, Tentex, Royal, Abana, Cystene, Gasex, Geriforte, Himcolin, Pilex etc. Most prominent among these brands is Liv-52 which is also the flagship brand of the company. It is ranked number one in the hepato protective lipotropic segments. [2]

Having made a mark for itself in the pharma health care segments ever since, Himalaya in the late nineties unleashed an entire range of new-age personal care products that included the night repair cream, anti wrinkle cream, fairness cream, the Ayurslim capsules & Party Smart along with an entire gamut of hair oils and shampoos. Himalaya has used its wealth of knowledge and research, in producing personal care products that caters to daily health needs. It includes health care, oral care, hair care and skin care products. The range comprises of soap–free face washes, facial cleansers, face tones, moisturizers, soap-free shampoo's, conditioners, pimple control, foot care, multi purpose cream, dandruff control, pain relievers and cough & cold relievers etc. among other products to strengthen its portfolio.

The Himalaya has consolidated their effort towards distributing and marketing the herbal concepts, which has caught on with the consumers urging even small- time players to package a concoction of herbs for cosmetic succour. The transition has been smooth and the brand unification exercise is already yielding a more positive consumer response. Ever since the packaging changed, the consumer feedback towards the personal care range has been encouraging.

The new additions of shampoos and lotions have been well received. The Himalaya's philosophy revolves around bringing the ancient system of ayurveda into mainstream usage. So, very recently the company changed its logo from Himalaya ayrvedic concepts to Himalaya Herbals.

The selected pure herbs products like Amalaki, Arjuna, Ashvagandha commonly known as winter cherry, Brahmi, Lasuna and Neem etc have kept the Himalay's Herbal image intact.

Marketing gurus are realizing that all round network and a thorough understanding of the village psyche are a must for making inroads into rural

market. Apart from increasing the geographical width of their product distribution the focus of the company should be on the introduction of brands and development of strategies specific to rural markets. An important tool to reach to the rural markets is through animal health care products. So the Himalayas had extended its legacy by bringing its expertise in health care to animal care. Concern for animal health ranges the products for commercial livestock in July 1998. The products in this range alleviate the suffering of animals and improve their health. This results in healthy livestock whose animal products are safe for human consumption. The prominent products among the animal care range are appetonic vet, Diarex vet Galactin vet, Speman forte vet, Nefrotec vet, Geriforte Aqua, Anxocare and Erina etc. The Himalaya Drug Company through its R & D usage and were granted a "Good Manufacturing Practices (GMP)" certificate issued by the licensing authority, Indian System of Medicine, Bangalore. Himalaya is the first Ayurvedic facility to get GMP certification in the country.

Hamdard (Wakf) Laboratories

Hamadared (Wakf) Lab. is a leading institution which began as a modest Unani Drug Shop in 1906. The man behind it was Hakeem Hafiz Abdul Majeed, one of the well known Unani practitioner of his time. Hamadard began to flourish and its name became synonymous with integrity and high quality in the field of relatively inexpensive Unani medicines. Now, Hamdard is a multi dimensional & internationally reputed organization as it is manufacturing more than 1200 drugs for the mass market with the help of modern analytical techniques and scientific methods. Hamdard has brought the goodness of nature through its products. It deals with a wide range of herbal medicines, herbal health care products, non-alcoholic beverages, health tonics, baby care products, Unani medicines and ayurvedic medicines. Modern analytical techniques and scientific methods of assessment and quality control have been employed to bring about improvements that ensure uniform quality and efficacy.

A new streamlined twin plant which has come into operation at Ghaziabad, near Delhi, uses the latest processes of manufacturing and

bottling. The ever growing demand of Hamdards market leading range of products has necessitated the setting up of two more factories in Okhla industrial Estate in New Delhi and in Haryana.

Some of the most demanded products of Hamdard are Rooh Afza, Sualin, Safi, Cinkara, Naunehal, Pachnol etc. The flagship brand of the company is Rooh Afza, which was introduced in 1907 and was included in the first list of drugs of Hamdard in 1908. Almost 100 year old history of Rooh Afza is also a pointer to the fact that no better formula has yet been evolved.

Based on the formulation, the Hamdard products come under single formulation products and compound formulation products. Single formulation products are those products which are made up of only one ingredient e.g. Roghan Badam Shirin. Compound formulation products have more than one ingredients e.g. Lahmina. Hamdard has a wide range of compound formulation products as well as of single formulation products.

Hamdard has used the natural wealth in producing long range of products such as Joshina, Benazir Hair Oil, Dynamol cream, Hamdogen, Qulzun, Zulamla, Masturin, Sharbat Amla etc.

Like modern medicine companies Hamdard is also promoting their products in almost the same way. Professional journals, trade journals, general periodicals, poster advertising, Radio & T.V. advertising have been used in order to increase consumer knowledge about the products manufactured by Hamdard.

Hamdard have got a new outlook towards their business which is very much in line with the modern medicine business. With a view to performing the task of marketing, Hamdard adopts a distribution system which uses their control distribution office as the first tier of their distribution spot and from there to regional distributors/ dealers and through retailers finally to the consumers.

Rex Remedies Pvt. Limited

Rex Remedies Pvt. Ltd, a reputed manufacturer and exporter of international quality unani medicines was established in 1995 with the aim to provide the consumers with innovative products within easy reach.

Rex has marked its presence with some very significant achievements and within a short span commands a market leadership status. Its success is based on dedication to nature, process hygiene, dynamic leadership and commitment to their partners. The company has s separate research and development department with sophisticated instruments related to microbiology, phytochemistry, plant anatomy and plant tissue culture where all its products are prepared after a long research and testing by the renowned Hakims.

The company exports around 25% of its total products to U.K., African and Gulf countries. Its monthly production capacity depends upon the demand of the market. The company has used attractive packing as one of the tool for capturing the market share.

The prominent products of Rex remedies are Farbah, Gasonil Pills, Hayateen, Goli Nawab Ali Shah, Kaforex, Likorex, Livorex, Renotone, Rex Health Tonic, and Dimaghee etc. All its products are manufactured on the basis of the Bible of Unani Medicines i.e. Biaz-e-Kabir and the National Formulatory of Unani Medicines (N.F.U.M.), which is the source for all Unani medicines.

A large variety of the products of Rex Remedies are patented. On the basis of quality of their medicines Rex Remedies has Good Manufacturing Practices (GMP) certificate which was issued in the year 2002 and is the only GMP certified company in Unani medicines in India.

Dawakhana Tibbiya College

Dawakhana Tibbiya College was established in 1954 with the sole objective of keeping the unani system of medicines alive in the country by providing genuine unani medicines which were on gradual decline at that time. It started under the auspices of Aligarh Muslim University, Aligarh on the very small scale but gradually enlarged in size and transformed into full fledged commercial organization, where a blend of old and new techniques are utilized to produce more than 300 high quality medicines for various diseases.

The products of Dawakhana Tibbiya College have established their image for quality and efficacy throughout the world. Due to high quality and reasonable prices, the demand of Dawakhana's product has increased manifold during the recent years. Its products are suitable for the Indian climate, life style and economic conditions and millions of people of all classes are benefited from its medicines. To maintain the quality of medicines, a quality control laboratory has recently been established.

Some of the leading products manfuctured by Dawakhana Tibbiya College are Dimagheen (a Brain Tonic), Angoori, Niswani, Khoon safa and Joshanda etc. It has a very wide network of more than 150 dealers around India and an overseas super stockist in Nepal. For the promotion of its products Dawakhana Tibbiya College utilizes the services of Radio, T.V. and leading vernacular newspapers.

Reference

1. Batting MNCs on Home Turf; Business India, May 13-26, 2002, pg.68-74.
2. ORG marg, July 2003.

ANNEXURE: 2.1

Questionnaire for the Consumers

Dear Respondent,

Please fill up the following questionnaire by your frank and truthful answers to help me in my doctoral research on herbal medicines.

Mohd.Zulfiqar Alam

1. How much effective are the following kinds of treatments. (Please tick on the appropriate level for each treatment).

Types of treatment	Effectiveness level				
	Very high	High	Moderate	Low	Very low
Allopathic treatment					
Unani treatment					
Ayurvedic treatment					
Homeopathic treatment					

2. Please indicate how much effective are the herbal (Unani / Ayurvedic) Medicines for the following disease categories:

Disease Categories	Effectiveness level				
	Very High	High	Moderate	Low	Very Low
Liver & Digestive disorder					
Vigour & Vitality					
Cold & Cough					
Men's & Women's problem					
Joint & Bones' Problem					
Children Care					
Blood and Skin care					
Personal care (Hair, Nail, oral & etc).					

3. Please indicate the performance level as you feel of the following Herbal Drugs manufacturers:

Manufacturers	Performance level				
	Very High	High	Moderate	Low	Very low
Himalaya Drugs co.					
Hamdard wakf lab.					
Dabur India ltd.					
Rex Remedies Pvt.Ltd.					
Shree Baidyanath ayur ltd.					
Local manufacturers					
Made by Vaids /Hakims					
Self made					

4. Indicate the important reasons making the Herbal medicines more popular than non-herbal ones. (Please rank the factors in order of importance).

(i) less side effects ☐ (ii) No expiry of medicine ☐
(iii) Affordable price ☐ (iv) total eradication of disease ☐
(v) Natural ingredients instead of synthetic ones ☐
(vi) Rising trends of awareness about the traditional medicine ☐
(vii) Just a craze without any reason ☐

5. Please indicate your preference for the form of Herbal medicines' packing type and size.

Forms of Medicines	Tick One	Packaging Type	Tick One	Packaging Sizes	Tick One
Tablets/ Capsules		Loose Supply		Single Dose Pack	
Paste Form		Plastic Jars		Small Size	
Syrup/ sharbet		Pouches/ Strips		Full Dose Pack	
Powder		Glass Jar		Large Family Pack	

6. What characteristic of the herbal medicine you give more value then the others? (Please rank them).

i) Proper prescription ☐
ii) Effect in formula ☐
iii) Ingredients ☐
iv) Nutritional value ☐
v) Taste and Flavour ☐
vi) Uses and storage convenience ☐
vii) Form of medicines ☐
viii) Packaging ☐

7. What is your choice of using Herbal medicines in different stages of disease?

Stages of Disease	Herbal Treatment			
	Try Ist	Try as a Supplement	Try as a Last Resort	Never Try
In Initial Stage of Disease				
In Intensity of Disease				
In Prolong illness				

8. Do the typical forms and usage methods of Herbal medicine put you in difficulty?

(i) A great difficulty ☐ (ii) A difficulty to some extent ☐ (iii) No problem ☐

9. The prices of herbal medicines as compared with other medicines are:

i) Very high ☐ (ii) high ☐ (iii) same ☐ (iv) low ☐ (v) very low ☐

10. How do you mainly get knowledge about Herbal medicine? (Please tick as many as applicable).

(i) Old people of family ☐ (ii) Friends and relatives ☐
(iii) Dealers and retailers ☐ (iv) Advertisements ☐
(v) Vaids/ Hakims ☐ (vi) Reading books ☐

11. Which of the advertising media are more effective in providing information about herbal medicines? (Tick as many as applicable).

(i) TV ☐ (ii) Radio ☐ (iii) News paper & Magazine ☐
(iv) Hoardings, posters & Bill boards ☐ (v) Display at stores ☐
(vi) Exhibition ☐

12. What sources do you ordinarily use for buying the Herbal medicines.

(i) General Stores ☐ (ii) Drug shops ☐
(iii) Herbal Medicine store ☐ (iv) Co. Agency ☐

13. How often do you face stock outs for your preferred brand of herbal medicines.

(i) Rarely ☐ (ii) Some times ☐
(iii) Frequently ☐ (iv) Always ☐

14. What impression generally you draw from the offers like free gift, discount, and extra with products.

(i) Good opportunity to purchase ☐ (ii) No consideration ☐ (iii) The product may be poor ☐

15. **Personal particulars:**

(i) **Gender:** Male ☐ Female ☐

(ii) **marital status:** Married ☐ Un Married ☐

(iii) **age group:** Below 25 ☐ 25-40 ☐ 40-55 ☐ above 55 ☐

(iv) **Profession:** service ☐ business ☐ Self employed ☐
Student ☐ housewife ☐ pensioner ☐

(v) **Monthly family income (Rs.):**
Below 3000 ☐ 3000-5999 ☐ 6000-8999 ☐
9000-11999 ☐ Above. 12000 ☐

(vi) **Education** .....

(v) **Number of family members:**.....

16. Any suggestion for herbal Medicines promotion:

Thanks

ANNEXURE: 2.2

Questionnaire for the Dealers

1. Which kind of medicines you deal in?

   (i) Herbal Medicines (u/a) ☐ (ii) Modern Medicines ☐ (iii) Both Type of Medicines ☐

2. Which of the given brands do you keep in stock? Please rate the selling position in this scale.

   No Demand [0] Slow Moving [1] Normal [2] Fast Moving [3]

HAMDARD WAKAF LAB.	S C	REX REMEDIES PVT. LID.	S C	DAWAKHANA TIBBIYA COLLEGE.	S C	HIMALAYA DRUG.CO.	S C	DABUR INDIA LTD.
SAFI		REXOTONE		KHOON SAFA		GASEX		'PUDIN HARA
NAU NEHAL		LEVOREX		NISWANI		LIV-52		HIM GOLI
KUL ZUM		GASONIL		DEMAGEEN		PYLEX		SILAJIT
PACHNOL		REX HEALTH TONIC		JAWARISH SHAHI		GERI FORT		HAZMOLA
CINKARA		DIMAGEE		AUJAIYAH		LUKOL		CHAWANPRASH

3. How is the future of Herbal Medicines? Please tick any one.

   (i) Fast increasing ☐ (ii) Increasing ☐ (iii) Same ☐ (iv) Declining ☐ (v) Fast declining ☐

4. Would you like to stock more of the Herbal Medicines in future?

   (i) Much more ☐ (ii) More ☐ (iii) Same ☐

   (iv) Less ☐ (v) Very less ☐

5. How attractive is the margin offered by the Companies for promoting the herbal medicines in comparison to Modern Medicine?

   (i) High margin ☐ (ii) Same ☐ (iii) Less margin ☐

6. How profitable is the investment in Herbal Medicine viz. a viz. Modern Medicine.

   (i) Highly profitable ☐ (ii) Profitable ☐ (iii) Same as in modern medicine ☐

   (iv) Less profitable ☐ (v) Unprofitable ☐

7. How regular is the supply of the Herbal Medicine to your store.
   (i) Regular ☐ (ii) Casual ☐ (iii) Rare ☐

8. How can these medicines be promoted? (Please give the ranks).

   (i) Increase the margin to retailers ☐ (ii) Supply regularly ☐

   (iii) Advertise sufficiently ☐ (iv) Motivate the Doctors to prescribe ☐

   (v) Introduce schemes in their sale ☐ (vi) Using sales representatives /MRs. ☐

9. What actions do you take for the products that move very slow? Give suggestions.

1 . . . . . 3. . . . . .

2 . . . . . 4. . . . . .

10. **Personal particulars:**

(i) Rural / Urban (ii) Area of store (Sqft.).....

(iii) No. Employees ..... (iv) Hours of opening . . . . . .

(v) Opening days of a week .....

11. Any suggestions for herbal medicines' promotion: . . . . . .

Thanks

Md.Zulfeequar Alam

ANNEXURE: 2.3

Questionnaire for the Doctors

Dear Dr. . . . . ,

Please fill up the following questionnaire by your frank and truthful answers to help me in my doctoral research on herbal medicines.

Md.Zulfeequar Alam.

1. Please indicate how much effective are the Herbal (Unani/Ayurvedic) Medicines for the following disease categories:

Disease Categories	Effectiveness Level				
	Very High	High	Moderate	Low	Very Low
Liver & Digestive Disorder					
Vigour & Vitality					
Cold & Cough					
Men's & Women's Sexual Problems					
Joints & Bones' Problem					
Children Care					
Blood & Skin Care					
Personal Care (Hair, Nail, Oral, etc)					

2. What is your choice of using Herbal Medicines in different stages of disease?

Stages of Disease	Herbal Treatment			
	Try First	Try as a Supplement	Try as a Last Resort	Never Try
In Initial Stage of Disease				
In Intensity of Disease (Acuteness)				
In Prolong illness (Chronic Stage)				

3. How do you find the trend of Herbal Medicine's use in place of non-herbal ones?
   (i) Herbal use rising ☐ (ii) The same ☐ (iii) Herbal use declining ☐

4. Indicate the important reasons making the Herbal medicines more popular than non- herbal ones. (Please rank the factors in order of importance).
   (i) Less side effects ☐ (ii) No expiry of medicine ☐
   (iii) Affordable price ☐ (iv) Total eradication of disease ☐
   (v) Natural ingredients instead of synthetic ones ☐
   (vi) Rising trends of awareness about the traditional medicines ☐
   (vii) Just a craze without any reason ☐

5. Do the typical forms and usage methods of Herbal medicine put you in difficulty?
   (i) A great difficulty ☐ (ii) A difficulty to some extent ☐ (iii) No Problem ☐

6. Should the companies manufacturing herbal medicines focus their attention to make their products available in all forms (Like capsules, Syrup, Tablets etc.) and all sizes (like pouches and tubes etc)?
   (i) Must do ☐ (ii) Should do as for as possible ☐ (iii) They may do ☐ (iv) Need not do ☐

7. What characteristics of the Herbal Medicines you give more value than the others.(Please rank them).
   (i) Proper prescription ☐ (ii) Effect in formula ☐ (iii) Ingredients ☐
   (iv) Nutritional value ☐ (v) Test and Flavour ☐
   (vi) Uses and storage convenience ☐ (vii) Form of medicines ☐
   (viii) Packaging ☐

8. Please indicate the performance level of the following Herbal Drugs manufacturers:

Manufacturers	PerformanceLevel				
	Very High	High	Moderate	Low	Very Low
Himalaya Drugs Co.					
Hamdard Wakf Lab.					
Dawakhana Tibbiya College					
Dabur India Ltd.					
Rex Remidies Pvt. Ltd.					
Shree Baidyanath Ayur Ltd.					
Local Manufacturers					
Self Made					

9. In which kinds of ailments you may prescribe herbal medicines in place of modern medicines. .
   (i). . . . . (ii) . . . . . (iii) . . . . . (iv). . . . . .

10. If new herbal products are launched and promoted, what will you do?
   (i) Ignore it ☐ (ii) Consider image of the company ☐
   (iii) Consider its ingredients ☐ (iv) Try once ☐
   (v) Wait till it becomes popular ☐

11. How do you mainly get knowledge about herbal drugs?
   (Please tick as many as applicable).
   (i) TV/ RADIO ☐ (ii) News Paper/ Magazine ☐
   (iii) Books/ Drugs' Periodicals ☐ (iv) MRs ☐
   (v) Discussion with other Doctors. ☐

12. What should the manufacturers of herbal medicine do to promote herbal medicines ethically (Please rank the following)?
(i) Clinical Research & Trials ☐ (ii) Sample distribution ☐
(iii) Documentation & Scientific Reports ☐
(iv) Advertising in Medical Journals ☐ (v) Quality standardization ☐

13. **Personal Particulars:**
a. (i) Private Clinic ☐ (ii) Govt. Doctor ☐ (iii) Private Hospital ☐
b. **Qualification** .....
c. **Specialization** .....
d. **Practice In:** (i) Herbal (Unani/Ayurvedic) Medicines ☐
   (ii) Modern Medicines ☐
   (iii)Both type of Medicines

14. Any suggestion for Herbal Medicines' promotion:

Thanks

ANNEXURE: 3

RESPONDENTS PROFILE

		Consumer Profile				
		City				
		Patna	Sitamarhi	Delhi	Aligarh	Total
Gender	Male	37	35	34	36	142
	Female	13	15	16	14	58
Total		50	50	50	50	200
Marital Status	Married	32	36	35	35	138
	Un Married	18	14	15	15	62
Total		50	50	50	50	200
Age	Below 25	14	14	14	14	56
	25-40	14	14	14	14	56
	40-55	14	14	14	14	56
	Above 55	8	8	8	8	32
Total		50	50	50	50	200
Profession	Service	10	10	10	10	40
	Business	10	10	10	10	40
	Self employed	10	10	10	10	40
	Student	12	12	12	12	48
	House wife	7	7	7	7	28
	Pensioner	1	1	1	1	4
Total		50	50	50	50	200
Monthly Family Income	Below 3000	4	7	4	2	17
	3000-5999	9	19	11	12	51
	6000-8999	9	16	5	15	45
	9000-11999	11	6	11	8	36
	Above. 12000	17	2	19	13	51
Total		50	50	50	50	200
Education	Below-Matric	7	20	5	8	40
	Matric	7	14	7	9	37
	Graduate	22	11	23	22	78
	Above Graduate	14	5	15	11	45
Total		50	50	50	50	200
Family Members	Less Than 4	12	8	13	12	45
	5--8	30	24	34	36	124
	9--12	7	13	3	2	25
	More than 12	1	5			6
Total		50	50	50	50	200

		Dealer Profile				
		City				
		Patna	Sitamarhi	Delhi	Aligarh	Total
Region of shop	Rural	2	4		1	7
	Urban	23	21	25	24	93
	Total	25	25	25	25	100
Opening days of a week	Six days	10	8	9	10	37
	Seven days	15	17	16	15	63
	Total	25	25	25	25	100
Area of Store	Less than 99 sqft	2	12		5	19
	100--199	13	10	21	15	59
	200--299	8	3	3	5	19
	300--Above	2		1		3
	Total	25	25	25	25	100
No.of Empolyees	1-2 person	5	18	5	16	44
	3-4 person	18	7	17	9	51
	5-6 person	2		3		5
	Total	25	25	25	25	100
Working Hours a day	8-10 h	4	5		1	10
	11-12	8	20	13	17	58
	13-14	13		11	7	31
	15--Above			1		1
	Total	25	25	25	25	100

		Type of Dealer			
		HMD	MMD	DBM	Total
Opening days of a week	Six days	18	8	11	37
	Seven days	2	32	29	63
	Total	20	40	40	100
Working Hours a day	8-10 h	3	5	2	10
	11-12	15	14	29	58
	13-14	2	21	8	31
	15--Above			1	1
	Total	20	40	40	100
No.of Empolyees	1-2 person	12	16	16	44
	3-4 person	8	21	22	51
	5-6 person		3	2	5
	Total	20	40	40	100
Area of Store	Less than 99sqft	6	7	6	19
	100--199	12	20	27	59
	200--299	2	11	6	19
	300--Above		2	1	3
	Total	20	40	40	100

HMD= Herbal Medicines Dealer, MMD= Modern Medicines Dealer
DBM= Dealing Both Type of Medicines

		Doctors profile				
		City				
		Patna	Sitamarhi	Delhi	Aligarh	Total
Types Of Clinic	Private Clinic	13	11	11	11	46
	Govt.Doctor	8	11	10	10	39
	Private Hospttal	4	3	4	4	15
	Total	25	25	25	25	100
Qualification Of Doctors	RMP		4			4
	Graduate in Herbal Medicines	8	6	7	4	25
	Graduate in Modern Medicines	6	8	4	7	25
	Post Graduate in Herbal Medicines	2		5	6	13
	Post Graduate in Modern Medicines	9	7	9	8	33
	Total	25	25	25	25	100
Way of Practice	Herbal Medicines	8	7	5	5	25
	Modern Medicines	14	14	15	15	58
	Both Type of medicines	3	4	5	5	17
	Total	25	25	25	25	100

ANNEXURE: 4

Leading Herbal Medicines' Manufacturers and Manufacturing Associations

Herbal Medicines' Manufacturers

1. **Amil Pharmaceuticals Pvt.Ltd,** A-132/2, Naraina Industrial Area, Phase-I, New Delhi.
2. **Alarsin, Plot No.A-32**, MIDC, Road No. 3, Post Box No. 9416, Opp. ESIS Hospital, Andheri(E), Bombay 400093.
3. **Baidyanath Ayurved Bhavan Ltd.**, Great Nag Road, Nagpur 412009.
4. **Bharatiya Aushadhi Nirman Shala (BAN)**, Dr. Vikram Sarabhai Marg, Gondal Road, Rajkot 360004.
5. **Dabur India Ltd.**, Harsha Bhawan, Block-E, Connaught Place, New Delhi 110001.
6. **Deccan Ayurveda Pharmacy**, Saidabad, Hyderabad 56.
7. **Dhootpapeshwar Ltd.**, 135, N. Desai Road, Bombay 400004.
8. **Himalaya Drugs Co.**, Shiv Sagar Estate - E, Worli, Bombay.
9. **Lupin Lab. Ltd.**, 159, CSTR, Bombay 400098.
10. **Maharishi Ayurveda**, A-34, Mohan Industrial Estate, Mathura Road, New Delhi 110044.
11. **Nukem Remedies Ltd.**, Natural Health Division, 16 Sita Estate, Aziz Baugh, Mahul Road, Chembur (E), Bombay 400074.
12. **(Rasashala) Ayurveda Rasashala**, 24, Karve Road, Pune 411004.
13. **(Sandu) D.K. Sandu Brothers**, V.N. Purav Marg, Chembur, Bombay 400071.
14. **Triguana Ayurvedic Research Lab.**, 47, Friends Colony, Mathura Road, New Delhi 110065.
15. **Yamuna Pharmacy**, Yamuna Nagar, New Delhi 135001.
16. **Yogi Pharmacy**, Lashkar Road, P.O. Gurukul Kangari, Haridwar, U.P.
17. Zandu Pharmaceuticals Works Ltd., South Gokhale Road, Dadar, Bombay 400025.
18. **M/s Modi Herb Pharma**, 3-4-223, Kachiguda, Hyderabad-500027 (A.P.)
19. **M/s Drugs Laboratories**, D-2/1, Zaidi Nagar Society, Zaidi farm, Meerut-250002
20. **M/s Dawakhana Tibbia College**, AMU Aligarh-202002 UP, **Phone: 400529.**

21. **M/s Herbs and Herbs**, B-73-74,Kalwar Scheme, Gopal Bari, Jaipur-1
22. **M/s Ahmed and Co.**, Gulzar Houz, Hyderabad-500002 (AP), **Phone:- 3531891, 3533027**
23. **M/s Simla Pharmacy**, 19040418, Bahadurpura, Hyderabad-500264.
24. **M/s Unani Products**, 1036-B, Madarsa Husain Bux Street, Jama Masjid, Delhi-110006. **Phone:- 3279975.**
25. **M/s Indian Medicine Pharmaceutical Corporation Limited** (A Govt. of India Undertaking) Mohan Distt. Almora (Via Ramnagar-244715) UP
26. **M/s Iram Laboratories**, H-2, and Local Shopping Centre, Shakoorpur, Delhi-110034.**Phone:- 7183887.**
27. **M/s Swastika Drug Pharma**, 211-12, Jawahar Nagar, Batela Road, Amritsar (Punjab)
28. **M/s Rex (U&A) Remedies Pvt. Ltd.**, A-51/1, G.T. Karnal Road Industrial Area, Delhi-110033. Phone: 743209,7216583,7228306 Fax : 91(11) 7133458
29. **M/s Himachal Drug Pharma**, Bazar Gandanwala, Amritsar (Punjab).
30. **M/s Sadar Dawakhana,** 7382, Quresh Nagar, Sadar Bazar, Delhi-110005. Phone:- 2941759.
31. **M/s Hamdard Wakf Laboratories,** Lal Kuan, Delhi-110006. Phone : 3213733,3215307
32. **M/s Medico Pharma**, 17-2-889/11C, Madannapet, Hyderabad-500659.
33. **M/s The Unani & Co., 930**, Kucha Ruhulla Khan, Tiraha Behram Khan, Darya Ganj, New Delhi-110002. **Phone:- 3277312, 3281584.**
34. **M/s Islahi Drug House**, 75-C, Hamid Manzil, Maulana Azad Road, Mumbai-400011.
35. **M/s Lari Pharma,** 1, Barooel-Khana, Luchnow-226018.
36. **M/s Maxo Laboratories (P) Ltd.,** 115, Kamla Nagar, Sri Bichhamal Building, Delhi-110007. Phone:- 2935670, 2926232.
37. **M/s Gangaputra Pharmaceuticals (India) Works,** Opp. Aryasamaj Mandir, Railway Road,Jind-126012 (Haryana) Phone:- 23414, 21786, 21785.
38. **M/s The Original Drug Co.**, 53, Pilakhua, District-Ghaziabad (U.P.)

39. **M/s AJ Laboratories**, 137-D, Pappu Colony, P.O.-Pasonda, District- Ghaziabad (U.P.). **Phone:- 4635915.**

40. **M/s Sadar Laboratories**, 606, Fakhrullah Street. G.B. Road, Delhi-110006.

41. **M/s New Capital Dawakhana**, T-1697, Gali Bishashwar Nath, Malkaganj Road, Subzimandi, Delhi-110007. **Phone: - 7525269.**

42. **M/s Win Pharma**, 166, Mahavir Nagar, Meerut (U.P.).

43. **M/s Bharat Chemical & Pharmaceutical Laboratory**, 191, Faizabad Road, Lucknow-226007.

44. **M/s Mubarik Pharmaceuticals**, Khunmoh, Srinagar.

45. **M/s Dawakhana-Al-Hayat**, Rehbaba Sahib Ali Kadal, Srinagar.

46. **IMPCOPS**, The Indian Medical Practitioners Co-operative Pharmacy and Stores Ltd. Thiruvanmiyur, Chennai – 600 041 Ph. 044-4911029, 044-4911189, Fax: 044-4913313

47. **TAMPCOL**, Tamil Nadu Medicinal Plants corporation Ltd., Chennai – 600106 Ph. 044- 216696 Fax 044-6281563

Herbal Medicines' Manufacturing Associations

48. **The Karnataka Indian Medicine Manufactures Association (KIMMA),** 8, Kumbelgodu Industrial estate,Bangalore-560074, Tel.Phone- 080-28437832, Fax No.-080-28437439

49. **Dr.D.Ramanathan, General Secretary, Ayurvedic Medicine Manufacturers Organisation of India,** Room No. 33,Arate towers, Veli Yanner Road, Thrissur-80021, Tele.Phone no.-0487-2423995.Fax.-0487-2448814

50. **Association of Manufacturers of Ayurvedic Medicines**, 22 Site-IV, Sahibabad-201010, Ghaziabad (U.P), Correspondence Address: H-36, Connaugth Place, New Delhi-01, Tel.:011-23350062, Fax.: 011 -23350063,E-mail : amam2003@sify.com,

51. **Ayurvedic Drug Manufacturers Association**, 15, bachubhai Building, J.Bhatankar Marg, Parel, Mumbai – 400012 Telefax: 91-22-24154611, E-mail : admaindia@vsnl.net, Website : www.admaindia.org.